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Lord Rusholme speaks to the City

SPEAKING at a luncheon given at the Guildhall in the City of London on March 3 by the London Midland Area Board of the British Transport Commission, Lord Rusholme, Chairman of the Board, claimed his Region to be the most important freight operator in the country. Freight traffic was busier than before the war, and its passenger business was as buoyant as ever. Passengers joined some five to six thousand London Midland trains at the rate of 400 a minute, and freight was loaded on some 2,500 trains at the rate of 130 tons a minute, 24 hours a day, throughout the year. From these and other services, the Region's gross receipts were some £140 million a year. The luncheon was given to civic dignitaries and leaders of industry and commerce, and the Principal Guest was Sir Cuthbert Ackroyd, a former Lord Mayor of London and acting Lord Mayor in the absence of Sir Edmund Stockdale. Lord Rusholme pointed out that the task now was to streamline and modernise the railways efficiently to perform their proper function and to attract back much of the heavy freight now cluttering the highways. Public confidence in railway reliability was of the first importance, and his own Region was the first to publish a freight train timetable now comprising 600 nightly express freight train services. Together with the Scottish Region, the London Midland runs every night the fastest freight train and door-to-door service in the country—"The Condor." In Lawley Street, Birmingham, it possessed the most highly mechanised freight terminal in the country and many of its new depots would advance even on this pattern. The formation and maintenance of public goodwill was being greatly aided by the Region's increasing use of decentralisation, through which management had moved nearer to both customers and staff. The Region was convinced that it was creating a first-class public transport instrument which would compete effectively with anything on land or in the air. It would not take much improvement to make the Region a commercial proposition. He also said: "There are those I know who hold the opinion that British Railways are a rapidly running-down concern. It has frankly surprised me . . . when in personal conversation with thinking men, to hear occasionally such views expressed. And when I have told them . . . some of the facts of life, I am not infrequently asked: 'Why does not someone . . . say these things in public ?'" This Lord Rusholme has now done.

L.A.M.A. Leaders

LORD CHANDOS, who has been elected to succeed Lord Nelson as President of the Locomotive & Allied Manufacturers' Association of Great Britain, has played a prominent part in industry for many years. He became Chairman of Associated Electrical Industries Limited in 1945, and apart from a break between 1951 and 1954, when he was Secretary of State for the Colonies, he has held that appointment continuously. Mr. Gerald Collingwood, who becomes the new Chairman of L.A.M.A., in place of Mr. G. T. Owen, is Managing Director of the Vulcan Foundry Limited, and thus occupies the position his father, Sir William Collingwood, held from 1912 to 1928. His association with that company goes back to his apprenticeship at Newton-le-Willows. The retiring President, Lord Nelson, who has held office for the past two years, is Chairman of the English Electric Co. Ltd., and was awarded a Barony in the recent New Year Honours. The appointments of Lord Chandos and Mr. Collingwood continue the policy of selecting for these offices men of wide experience and outstanding personality which was adopted after the old Locomotive Manufacturers' Association was broadened in its scope to include allied interests and in particular undertakings concerned with diesel and electric traction.

Improved Results in South Africa

A SURPLUS for South Africa Railways of £1,906,800 for the year ended March 31, 1960, was announced last week by the Minister of Transport, Mr. B. J. Schoeman, in presenting his departmental estimates to the South African House of Assembly. Of the surplus £346,890 will be used to cover last year's deficit and the remainder to replenish the rates equalisation fund. The Minister stated that railway revenue would probably exceed last year's estimate by £2,500,000, mainly because of increased traffic and an increase in the ratio of high-rated goods. He praised the railwaymen, who had refrained from making pay demands in view of the railways' difficult financial position disclosed in last year's budget. Their pay is not high, and their example might well be followed elsewhere. He foresees a deficit of £1,753,200 for 1960-61. Although he could have provided for a surplus by increasing tariffs, he pointed out, it was unwise to provoke an increase in the national cost structure when the South African economy was gradually improving.

Another Route from Rhodesia to the Atlantic

A FURTHER, and more direct, railway link between Rhodesia and the Atlantic is reported to have been the subject of ground and aerial reconnaissance by Rhodesia Railways. Besides access by South African Railways to ports in the Union, and by Mozambique Railways to Lourenço Marques and Beira, on the India Ocean, traffic passes between Rhodesia and the Atlantic port of Lobito Bay, in Angola, *via* the Benguela

Railway; this necessitates transit through Belgian Congo territory. The more direct link with the Atlantic would be from a point near Livingstone to Vila Serpa Pinto, in Angola, terminus of a 300-mile railway from the port of Mossamedes. About 900-1,000 miles of line would have to be built, most of it in Angola. The gauge of all railways concerned is 3 ft. 6 in. Commercial prospects are reported to be favourable from the Rhodesian point of view; the line would traverse teak forests, for instance. A direct route would be afforded between the Portuguese territories of Angola and Mozambique. Even although the port of Mossamedes is stated to be well equipped for ocean-going vessels, it is hard to see how shipping costs and rates will offer any inducement to call there.

The Pullman Car Company in 1959

RECORD receipts and trading profit for 1959 of the Pullman Car Co. Ltd. are encouraging as showing appreciation by the travelling public of the comfort offered by Pullman cars and of the good service and high standard of catering achieved by the company on British Railways. A successful recent development is the credit card system introduced in the autumn of 1958 to avoid the necessity to disburse cash in Pullman cars. All this augurs well for the five diesel-electric Pullman trains to be introduced this year between St. Pancras and Manchester and Paddington and Bristol and Birmingham. If, as seems probable, the expected traffic materialises, the new services should make some contribution to meet the increased costs of operation. The annual report shows that gross receipts were £901,613, compared with £844,050 for 1958, and working expenses £755,788 (£738,102), leaving a trading profit of £145,825 (£105,948). The board recommends payment of a dividend on the ordinary share capital of £70,000 after payment of tax; if this is approved the carry-forward will be increased to £292,829.

R.E. (Transportation) Army Emergency Reserve

SINCE the end of the last war the calling up on more than one occasion of Transportation units of the Royal Engineers Army Emergency Reserve, has shown how essential is such a reserve for military operations of limited scope. For these, fortunately rare, eventualities it would not be worth the expenditure of money and manpower to maintain, in peace time, regular army technical units on the scale required. The railway, port, and inland water transport units of the R.E., A.E.R. (Transportation), have a fine record in war, and in peace they are examples of citizen soldiers who devote spare time and energy to applying the skills of their callings to military needs and to acquiring the necessary military proficiency in readiness for service anywhere they are needed. A tribute to them was paid at the R.E.,A.E.R.(Transportation) Officers' Reunion Dinner last Friday by Mr. Christopher Soames, Secretary of State for War, who said that they deserved greater recognition. For railway units the Regional organisation of British Railways facilitates recruitment to units composed mainly of staff of a Region. The British Transport Commission and Regional managements have encouraged service in the A.E.R. Sir Brian Robertson, Chairman of the Commission, and honorary Colonel of Transportation, A.E.R., presided at the dinner.

The Effects of Railway Streamlining

THE article in this week's issue entitled "Streamlining the Railways in North-Eastern England," by Mr. R. W. Hall, Head of the North Eastern Region's Traffic Facilities Investigation Sub-Section of York, examines the problems which attend the current process of railway contraction under modernisation. Any form of closure, partial or complete, is always a sad business for the railwayman, a fact not always admitted by organisations, and individuals who stand to lose by the closure. Speaking last week at a joint meeting of the North Eastern and North Western Transport Users' Consultative Committees at Carlisle, Mr. G. W. Iredell complained on behalf of the British Hotels and Restaurants Association and the Lake District Hotels & Caterers' Association that the cuts would do damage to the holidays and catering industries in the Lake District. It may be that this will be so, but Mr. Iredell should remember that the soundest way to ensure the continuance of a railway line is to see that enough people use it to make it an economic proposition. British Railways cannot be blamed if it exercises the same initiative and business sense as that sometimes claimed to be a monopoly of private industry.

Meeting the Public

ATTACKING the problem of meeting the public in a way entirely new to British Railways, the North Eastern Region on February 29, held a combined lecture, film show, and brains trust. The function, which was held in Huddersfield in St. Patrick's Parochial Hall, was presided over by the Mayor and Mayoress. Attendance was excellent—the hall was filled to capacity and beyond—and the many questions were brisk and interesting. The meeting was opened by Mr. E. E. Cowell, Traffic Manager, West Riding, who outlined the programme. Mr. Cowell was followed by Mr. F. L. Hick, Assistant Operating Officer, who gave a talk illustrated by lantern slides on the traffic developments which are taking place in the Region. Next came a coloured film reinforcing Mr. Hick's statements, and the latter part of the two-hour programme was taken up by the brains trust. The panel comprised Mr. W. Clegg, District Goods Superintendent, Leeds; Mr. D. Hill, District Passenger Superintendent, Leeds; Mr. W. E. Waite, District Operating Superintendent, Leeds, and Mr. R. W. Taylor, District Motive Power Superintendent, Leeds. Meetings of this kind not only stimulate public interest in railways; they also help in the development of the railwayman's personality.

Careers on the Railways

RECENT developments have changed many aspects of work on British Railways and the London Transport Underground. The opportunities now available are outlined in "The Railways," the latest in the "Choice of Careers" series issued by the Central Youth Employment Executive, and the subject of a brief notice on page 273. The duties of many grades are outlined clearly, with a wholesome compromise between the matter-of-fact and the undeniably more romantic aspects of much railway work. Many school-leavers today desire work which involves use of up-to-date techniques and equipments. Prominence is rightly given in the text and in the well-reproduced illustrations to the modernity of much with which the young railwayman can be concerned, such as maintenance of diesel-electric locomotives and fault-finding in power-operated points. No attempt is made to hide the that fact despite an increasing degree of mechanisation, many jobs are, and must remain, arduous—which will not deter the right type of youth.

Sense in Suggestions

THE correspondent who complained, in his letter published last week, that only 10 per cent of suggestions made by the staff of British Railways seemed to be adopted, overlooks the fact that the many specialists in railway departments engaged on design, operational research, and other activities to improve techniques and equipment are likely to hit on ideas sooner than is the railwayman not so intimately concerned who makes a suggestion. Our correspondent is certainly less than fair when he complains of the length of time taken to reply to those who submit ideas. To examine a suggestion takes time, if only to ascertain the extent to which it may embody a principle already adopted. It is better to spend time on careful consideration than to reject out of hand. Imagination boggles at the notion that "hundreds of thousands of pounds yearly" are lost on British Railways because bright ideas are not well received. Suggestions are examined by committees in the Regions representing all departments, and the chairmen of these represent the Regional General Managers.

Station Design for Post Office Railway

EXCAVATION of an area 200 ft. long by 95 ft. wide to a depth of 70 ft. and the construction of a reinforced concrete basement within the excavation was a main feature in construction of a new sub-surface station for the Post Office Underground Railway, completed in 1958 on a site between Rathbone Place and Newman Street, London. Three-

dimensional photo-elastic model tests and extensive strain-gauge measurements confirmed methods of design and provided data on behaviour of the end walls in service. Tests were also made to verify the assumed losses of pre-stress through shrinkage and creep of the concrete and friction between the cables and duct walls. These points were considered at a discussion on two papers, one by Messrs. S. Blackford, Senior Engineer, and E. W. Cuthbert, Senior Engineer (Design & Construction), Sir William Halcrow & Partners, describing the design and control during construction of the station and connecting tunnels, and the other by Messrs. V. H. Collingridge, Director, Mowlem (Civil Engineering) Limited, and R. E. Tuckwell, Contract Agent, John Mowlem & Co. Ltd., describing the construction of the station, at the Institution of Civil Engineers on March 1.

New Colliery Branch in Nottinghamshire

FAITH in the future of the Derbyshire-Nottinghamshire coalfield is shown by the construction of a 4½-mile branch of British Railways, Eastern Region, to serve Bevercotes Colliery, on the eastern edge of the coalfield. Details are given elsewhere in this issue. By 1963 the annual output to be moved by rail is expected to be 1,000,000 tons. A good deal of civil engineering work has been necessary. It includes a 350-yd. tunnel, to preserve agricultural land. With the tunnel and the many earthworks and bridges the branch is expensive to build, but evidently the cost is considered justified by the roughly 4,000 tons of coal a day to be carried over it. The last colliery branch to be built in Britain was in the same coalfield, and in Nottinghamshire, the 7½-mile section constructed by the London Midland Region from the new colliery at Calverton to junctions with lines of the former London & North Eastern and London Midland & Scottish Railways. It was opened in September, 1952, and also involved costly engineering work.

Proposed Diesel Express Service in New Zealand

SPARSENESS of population in New Zealand complicates the provision of passenger services. The area of the North Island is 44,000 square miles and the population some 1,600,000. Between the population centres of Wellington and Auckland there is at present an overnight express six days a week, taking 14 hr. for the 420 miles, which is creditable for the 3-ft. 6-in. gauge. A steam-worked day service introduced some years ago was withdrawn as unprofitable. With a view to construction, probably in Britain, of diesel multiple-unit trains or railcars to work on an accelerated day schedule between the two cities, the New Zealand Government Railways last month made a test run with a train hauled by two 750-h.p. English Electric diesel-electric locomotives, as recorded in our overseas pages this week. Without attaining very high speeds, the journey is reported to have been completed in 11½ hr. It may well be possible to improve on this with diesel vehicles, for the design of which the test has afforded data. A day journey with diesel haulage, through fine scenery, has many attractions, but road competition is acute and increasing, and the traffic potential is limited.

Electrification East of Calcutta

TOWN planners have shown themselves as heedless, sometimes, of the realities of railway transport in India as elsewhere. It was suggested recently that the Sealdah terminus in Calcutta of the former Eastern Bengal Railway, now part of the Eastern Railway, be shifted one or two miles further from the city centre, partly to lessen street congestion. The suburban traffic at Sealdah is heavy, as described in our issue of February 15, 1957. Mr. K. B. Mathur, Chairman of the Railway Board, has pointed out that if the station were moved outwards, apart from the enormous disturbance to railway working, the time saved by electrification would be spent in reaching the inner area of Calcutta by street transport; congestion of the station approach roads at Sealdah could be mitigated by tunnels for the tram tracks and some road traffic. The Sealdah to Ranaghat and Dum Dum to Bongaon lines will be electrified by 1962, it is hoped, at 25 kV, 50 cycles a.c. Work now in hand includes lifting of overline bridges to give clearance for overhead equipment.

Road and Rail Co-ordination in Rhodesia

THE agreement signed recently by the Rhodesia Railways and the Federal Long Distance Road Operators' Association, in the Federation of Rhodesia & Nyasaland, for the co-ordination of rail and road goods transport should be of considerable ultimate benefit to the railways and to the people of Southern and Northern Rhodesia. Its conclusion at a relatively early stage in the country's development will enable the Federation to avoid many difficulties which older and more developed countries have experienced because of inadequate co-ordination between the two main land interests.

In signing the agreement, which has been recognised by the Minister of Transport, Mr. W. H. Eastwood, on behalf of the Federal Government, for its initial period of two years, the Long-Distance Road Operators acknowledge that because the railway rating structure of the Rhodesia Railways is designed as being the most beneficial for the overall well-being of the state, they will support it. This implies that, along routes where road and rail transport compete, long-distance road hauliers will not undercut the Railway rates for comparable traffics. Competition between the two forms of transport will be on the basis of the service offered to the public and not on the basis of the charges raised.

The routes affected by this agreement are those linking the main centres by road and rail between Bulawayo, Salisbury, Umtali, Livingstone, Lusaka, and the Copperbelt. Only high-rated traffic such as consumer goods, machinery, processed foods, and so on, is affected, and only traffic originating within the Federation falls within the scope of the agreement. Road transport will be entitled to apply for permits for carrying a proportion of additional traffic in the ratio which has applied previously. This does not guarantee to either road or rail services the proportions of traffic agreed upon, but relates only to the capacity for carrying such proportions. The parties will compete through the services they offer for the tonnage available.

In a joint statement issued by the Rhodesia Railways and the Long-Distance Operators' Association, it was pointed out that the Commission of Inquiry into the rating structure of the Rhodesia Railways (Harragin Commission) was required as one of its terms of reference, to consider and report upon provision for varying rates and charges to counter competition from road transport. The Commission found that adequate provision already existed, but after extensive inquiries into the problem came to the conclusion that if a rates war between road and rail services was declared, the whole rates structure which they recommended would be irrevocably undermined. They stated that the practical answer appeared to lie in some form of stabilisation of public road haulage, and suggested that it would be desirable for the Railways and the road hauliers to meet and endeavour to find a solution whereby road and rail could live together. They felt that a solution was not now beyond the wit of man, but would certainly become impossible in the foreseeable future if the present position were allowed to continue.

Early last year, representatives of the Railways and the Federal Long-Distance Road Operators met to see if a scheme could be worked out within this framework and the Federal Minister of Transport announced in the Federal Assembly on November 9, 1959, that the possibility of an understanding between the parties was being further considered by the Railway Management.

Co-ordination of road and rail transport is necessary because the collective rating structure of the Rhodesia Railways is particularly vulnerable to competition from road haulage and therefore the Railways require some safeguards if, as recommended by the Commission, this type of rating structure is to be retained. The road haulage industry is now well established and provides a necessary and useful service, there is a need to maintain in the public interest a state of healthy competition between road and rail as distinct from cut-throat competition or a complete railway monopoly.

It is hoped that the co-ordination scheme will enable a virile and reliable road transport system to be maintained, which will adequately serve the interests of its user public and will also be available for the benefit of the State in the event of an emergency arising from any cause.

The new arrangement will eliminate the cutting of rates by the Railways to attract traffic from the road operators on the

routes covered by the agreement. In the short-term, the public undoubtedly benefit from price competition, but in the long run, with charges virtually controlled by Government, the public will obtain a greater benefit from a stabilised charging system. In addition it must not be overlooked that the benefit of cut rates is enjoyed only by the public served by routes on which competition is intense, and a preference is therefore enjoyed by these users of the Railways over those served by routes on which competition is negligible.

South African Railways in 1958-59

THE report of the South African Railways & Harbours Administration for the year ended March 31, 1959, has been received from Mr. D. H. C. du Plessis, General Manager. It shows that the operation of all services resulted in a net deficit of £8,165,455 for the year, after allowing for a total net revenue appropriation of £5,525,200. The latter amount comprises £1,500,000 for betterment fund, £25,200 towards reducing the deficiency in the pension fund, £3,500,000 as a special contribution to the renewals fund, and £500,000 as a special contribution to the insurance fund. Of the revenue deficit of £8,165,455, an amount of £7,818,565 has been charged to the rates equalisation fund and the balance of £346,890 will be carried forward in the deficit account. The year was, therefore, closed with a completely exhausted rates equalisation fund, the Departments only reserve fund, and a deficit of £346,890 that had to be carried forward to the current financial year.

The figures for the railways, including road transport and other ancillary services, are given in the following table of principal results :—

	1957-58	1958-59
	Thousands	*Thousands*
Passenger journeys	266,788	274,389
Goods tonnage	65,794	67,733
Passenger train-miles	22,346	23,010
Mixed train-miles	7,245	7,274
Goods train-miles	66,620	68,619
Total train-miles	96,211	98,903
Total freight ton-miles	21,403,487	22,285,495
	£ *thousands*	£ *thousands*
Passenger receipts	18,878	19,051
Parcel & mails receipts	4,866	5,179
Goods, coal & livestock receipts	114,327	111,259
Miscellaneous receipts	8,726	8,307
Total receipts	146,797	153,798
Total expenditure	103,066	113,471
Depreciation	9,338	10,116
Working expenses	93,728	103,355
Surplus	43,731	40,327
Interest and other charges (net)	40,720	45,277
Balance, railways	3,011	Dr. 4,950

It was realised that immediate and drastic action would have to be taken to balance accounts and, with this end in view, various measures to improve the financial position were introduced without delay. Among others, improved measures for regulating railway expenditure have been applied, one of the most important features in this regard being the introduction of budgetary control. In addition, steps were taken to intensify the campaign to promote efficiency and secure the maximum economy in all fields of activity. It is already evident that the intensified efforts by the Department to balance its budget are bearing fruit. At the beginning of October, 1959, the working results reflected a net surplus of £359,078, after allowing for the shortfall of £346,890 brought forward from the 1958-59 financial year.

Compared with the previous year, increased revenue was recorded under all heads of railway transport services except miscellaneous. The increase was principally attributable to the implementation of a partial tariff increase from July 1, 1958, and an increase in the total tonnage of revenue-earning traffic conveyed.

In comparison with the year 1957-58, expenditure in respect of railway transport services increased by 10·09 per cent. The main reasons for the increase were the non-pensionable allowance paid to the staff with effect from April 1, 1958, salary and wage increments and improved scales, additional expenditure in respect of fire insurance premiums, additional material required for the upkeep of the permanent way, increased material requirements for heavy repairs to steam locomotives and goods stock, as well as for the maintenance of diesel locomotives, additional running expenses, an increased contribution to the superannuation fund, and depreciation.

With the re-distribution of tractive power, which was made possible by the procurement of additional "GMA" and "GMAM" steam locomotives, electric and diesel-electric locomotives during the year, the position improved considerably and from September, 1958, it was possible to handle traffic with much greater facility. The commissioning of diesel-electric locomotives capable of hauling loads of 2,100 tons from Germiston to Kroonstad, compared with 1,450 tons for a Class "15F" steam locomotive, and the introduction of electric working to Klerksdorp at the beginning of December, 1958, undoutedly proved major factors in the improvement that has been effected in the clearance of traffic.

Since the close of the year, the section of line between Johannesburg and Kroonstad has been commissioned for electric traction, and it is expected that the doubling of the Natal main line between Pietermaritzburg and Ladysmith will be completed and the line opened to traffic towards the end of the current financial year. The completion of these two projects will be a great step forward in the Departments' efforts to provide improved and more expeditious rail services.

During the year, 26 new standard-gauge steam locomotives, Class "GMA" and "GMAM," 57 new Class "5E" electric locomotives, and 45 new diesel locomotives were placed in service. In addition, seven new narrow-gauge Garratt steam locomotives were acquired so that the total locomotive tractive power available to the Department at the end of the year was 110,449,248 lb., an increase of 4,687,380 lb. over the previous year's figure. New standard-gauge coaches taken into traffic during the year totalled 283. At March 31, 1959, the total rolling-stock establishment comprised 6,030 coaching vehicles, 186 more than at the end of the preceding year.

The goods-stock establishment increased substantially during the year under review, the total number of vehicles advancing by 5,385 to 103,585. The aggregate carrying capacity of the merchandise-carrying wagons in service increased by 149,356 tons to 3,102,433 tons, and the average loading capacity per wagon decreased from 33·83 tons to 33·34 tons.

Portuguese Railways Plans

IN commemorating the centenary of the Portuguese Railway Company which since 1947 has operated all the lines in Portugal with the exception of the Estoril Railway connecting Lisbon with Cascais, the President of the Board of Management, Dr. Mário de Figuiredo, accompanied by the chief officers, recently gave the details of the two six-year plans embarked on in 1953, for modernising the system. Founded in 1860 and long dependent on foreign capital, the company experienced many vicissitudes and more than once had to be re-formed. Largely in consequence of the great difficulties experienced during the last war it was, by agreement with the Government, given its present constitution and scope of operations, under an all-Portuguese board, with effect from January 1, 1947.

The 1953-58 plan formed a principal part of Government policy for raising the standard of living, which involved improving rail and other forms of transport. It allocated a large capital sum to the improvement of the railways leased to the company which at the end of the war needed essential renewals, and required to be increased in capacity to handle a steadily increasing traffic. These proposals envisaged the electrification of various sections. The lines from Lisbon to Setil and Entroncamento, with a short section from Campolide, were converted on the 50-cycle system in 1957-58, with a total route mileage of 89. The results exceeded all expectations.

The second six-year programme, involving over double the previous capital investment, includes electrifying northwards to Oporto and Ermezinde, thus completing the change between the two principal cities of the country over a route now carrying about 50 per cent of the total traffic, again with improved telecommunications and signalling (including, for the first time in Portugal, centralised control between Setil and Venda Novas) easing of many curves, widening of the two remaining single-line sections, the longest of which is between Fatima and Albergaria. Oporto station is to be enlarged, the present workshops being removed to make space available. Orders have been placed for the electric locomotives and other stock, with some diesel locomotives, refreshment cars, and first-class coaches, some of which will be air-conditioned.

Contracts for new equipment have been awarded to Portu-

guese industry, though much material is being obtained from other countries. Some contracts remain to be placed in connection with the electrification work and signalling.

Developing Bulk Transport in N.E. Region

BRITISH Railways, North Eastern Region, has set up a new organisation to deal with bulk transport of traffic. The extensive agriculture and the many important chemical and heavy engineering industries within the Region offer particular scope for this type of handling. In seeking better and more economical methods of moving materials in bulk, two assistants to the Regional Commercial Officer have been appointed to specialise in developing bulk transport facilities for solids and liquids. The movement of minerals and liquids in bulk are a well established part of railway business, but recently a much wider range of materials has been found amenable to similar handling. There is an increasing tendency to break away from traditional packaging. Bags, boxes and drums are costly to provide and handle. They are liable to be burst, broken or pilfered, and for transport in quantity, they give payloads often well short of maximum.

Already the new organisation is showing tangible evidence of progress. A new industry, to manufacture a compound liquid fertiliser has been established in the West Riding. Output will be around 600 tons a day and a new type of rail tank wagon, to carry 22 tons and specially designed for the traffic, has already passed the drawing board stage, while plans to establish railhead storage and radial distribution by road tankers, are well advanced. The changeover involves the provision of new, and often costly, equipment. It also requires the closest co-operation of headquarters, area traffic managements and traders and, if full advantage is to be taken of all the possibilities, specialists are necessary.

With new mechanical means, new materials, and new processes, at the disposal of transporters, bulk handling can be extended. Considerable quantities of home grown grain, formerly bagged, now flow in bulk by rail from a Yorkshire drier direct to a Scottish distillery. Imported grain from a dockside silo now moves in bulk by rail to inland flour mills. Bulk cement is loaded into 20-ton " Pressflo " wagons at the Humberside factories being blown out again, at the end of its rail run, into specialised road delivery tankers distributing to building sites and discharging pneumatically direct into contractor's storage hoppers.

The North Eastern Region is the first Region of British Railways to introduce sales specialisation for bulk transport and transfer and, in addition to normal development, the new concept is intended to stimulate demand. The newly appointed assistants, Mr. J. Thorrington and Mr. S. B. Hobbs, will devote themselves respectively to the bulk-carrying of solids and liquids. Both will work in liaison with manufacturers and traders by co-operating with the sales organisations.

Mechanised Maintenance on the Pennsylvania

ADDRESSING a recent joint session of the Roadmasters' and Bridges & Buildings conventions of the Association of American Railroads, Mr. C. J. Henry, Chief Engineer of the Pennsylvania Railroad, described the steps his administration had taken to meet rising costs of maintenance without any increase in allocation of funds for that purpose.

The first measures taken were to equip a few extra permanent way gangs with some 15 different kinds of mechanical appliances at a cost of about £71,000 for each gang of 55 men. On at least one district this resulted in a saving of 56 per cent in manpower, in better quality work and particularly in greater uniformity in tamping. Another type of gang, 16-strong, in charge of general surfacing, was equipped with machines costing some £28,500; this also proved satisfactory.

It was therefore decided to adopt mechanical maintenance on a much larger scale—in fact, at System level—organised on a cyclical basis. For instance, sleeper renewals are now carried out on a six-year cycle and intermediate surface-lifts every two or three years according to the demands of traffic. All maintenance except in yards is organised in this way between Philadelphia and Chicago and Pittsburgh and St. Louis.

Maintenance gangs are housed in camping vans and do programmed work on a district basis. Each district has a heavy-maintenance gang, two surface-lift gangs, three spot-surfacing gangs, two work-train gangs, two level-crossing gangs, and three skirmish gangs; the latter correct intermediate surface and line irregularities developing between work-cycles. Patrol lengths vary from 40 to 50 miles and are equipped either with rail motor trolleys or with road-rail lorries. Each section supervisor also has at his disposal for emergencies a road-van or lorry equipped with a hydraulic tail-gate, rail-saw, power-drill, small compressor unit, tamping tools, and a 14-ft. spare length of rail with bolt-holes at both ends for replacing temporarily a piece of that length cut from a broken rail in the track, should this be necessary. He also has a welder, a machine-operator and four track men.

In winter heavy-duty gangs work either in yards, on lineside work, on snow-fighting or similar duties. The machine-operators overhaul their machines at that time of year in various workshops. It is noteworthy that whereas seven years ago the average strength of the track-maintenance force of a district was about 1,000 men, today it is only 350.

On the bridge and buildings side also mechanisation is increasing. Each region has a road-rail crane, grouting and spraying equipment and a road-rail-mounted inspection or scaffolding tower as well as a trailer fitted with small tools. The personnel is housed in a road-trailer.

To reduce unit-costs by increased production, data had to be obtained and information distributed throughout the staff. For correlating results, it was arranged that selected officers should take a special course in industrial engineering methods to enable them to report on man-hours and labour costs per unit. As an example, one such report shows that 254,625 man-hours and some £208,000 were required to raise by machines about 5,500,000 ft. of track during the first six months of 1959; or 0·046 hr. per unit.

The selected officers also investigate with the aid of cine-cameras and report on speeds of movements of men and machines with the object of reducing the numbers of those movements, speeding up production and reducing manpower. Their work and reports have proved eminently satisfactory and have enabled gang-strengths to be reduced by from 10 to 50 per cent simultaneously with substantial increases in total production. Mr. Henry points out that cyclical maintenance methods require most careful planning by all grades of staff from supervisors to district, regional and system officers. Meanwhile bridge and building programmes also are prepared on a gang basis and by jobs and expenditures, with detailed lists of materials required at successive dates. He also emphasises that the success of any mechanisation programme depends upon the number of hours the machines can work.

Improved Services in Nyasaland

SINCE the end of the war of 1939-45, Nyasaland Railways Limited has spent just over £3,000,000 on railway expansion and the purchase of locomotives and rolling stock and equipment, and a further £400,000 on the Lake Nyasa shipping service. By this expenditure the company has been able to improve its conveyance of goods and passengers and has helped in the expansion of commerce and industry in Nyasaland. This was explained recently by Mr. H. W. Stevens, General Manager of Nyasaland Railways, at the opening of a new goods depot at Blantyre.

At the moment there is no further capital available for expansion, though the board is negotiating a new loan. A railway must continue to expand in a new country which has still a long way to go in its development. It is still, as Mr. Stevens has pointed out, the cheapest form of land transport and by flexibility in rating policy can help new industries and enterprises by quoting low rates for the initial developmental period. The undertaking must, however, pay its way. If the country is to obtain the benefit of such a rating policy, he maintains, it cannot allow the cream of traffic to be diverted to an undue degree to other forms of transport. Without the high-rated commodities the railway is forced to increase its low rates. These would still be lower than those at which other forms of transport could compete but would probably reduce the profit margin of railway users.

The express service from Rhodesia *via* Dondo continues to expand and, with the co-operation of Rhodesia Railways, the Mozambique Railways, and the Trans-Zambesia Railway, Nyasaland Railways has accelerated it, so that the transit time

is four days from Bulawayo and three days from Salisbury. This is an all-the-year-round service. As a result of the company's £1,500,000 investment in 1933-35 on the construction of the Zambesi Bridge, traffics are not held up by the flood waters of that river. Refrigerated containers are operating successfully between Salisbury, in Rhodesia, and Blantyre, and Mr. Stevens sees no reason why they should not be extended, given the traffic, to Lilongwe, with movement by road from railhead at Salima. The use of other types of containers is being investigated, as are other facilities for handling traffic.

Wagon Supply on American Railroads

(*By a correspondent*)

IN 1959 the U.S.A. railroads recorded 30,990,640 revenue wagon loadings, 764,430, or 2·5 per cent, more than in 1958, but 4,509,500, or nearly 13 per cent, less than in 1957. For the week to January 9 this year there was a 7 per cent rise in loadings to 591,515 and an upward trend is likely to continue. Apparently the railroads met the increased demand for wagons at the beginning of the year but they are not fully equipped to deal with an upsurge in traffic.

At January 1, the stock of wagons was 1,677,970, with 121,360, or 7 per cent of the total, under repair. The number available for traffic was thus 1,556,610, a decrease of 21,000 from the number of serviceable wagons a year earlier. In 1959 the railroads installed 41,410 new wagons, while withdrawing 89,170 from service. At January 1 they had 43,500 new wagons on order, but much will depend upon the prompt delivery of these wagons and on a speedy reduction in the under-repair percentage. It would be unfortunate to have complaints of wagon shortages arising at the present juncture.

Until the railways contrive to strengthen their rolling stock, there will be an anxious time ahead for the Car Service Division of the Association of American Railroads, which supervises the national distribution of wagons and checks wagon user by railroads and traders alike. For its field work the Division has district offices at 13 important railway centres in the States and its agents frequently visit stations, marshalling yards and the premises of traders dealing with heavy traffic.

To cope with pressure on the available wagon stock, the A.A.R. seeks to induce senders, consignees, and carriers of general merchandise to co-operate in handling heavier wagon loads. Since 1948 the number of box cars has been reduced by 10,000, though the aggregate capacity of the present fleet is a million tons, or nearly 3 per cent, higher. Traders are prone to ask for high-grade box wagons of 40 or 50 ft. length, with wide or double doors, and then fail to load them to capacity. In 12 months to July, 1959, car service agents investigated 393 cases, and effected sufficient savings in wagon user to justify a further campaign for heavier wagon loading.

There is scope for a similar inquiry on British Railways. In 52 weeks of 1959 our railways forwarded 9,892,000 wagons of merchandise and livestock. For the whole system the average load was 3·95 tons. The North Eastern, Eastern, and Western Regions had averages of over 4 tons, but the London Midland load was only 3·63 tons and it used no fewer than 3,079,000 wagons. Heavier loading would have saved many thousands of these wagons and improved mobility in the Midlands.

LETTERS TO THE EDITOR

(*The Editor is not responsible for opinions of correspondents*)

Cold Trains

February 23

SIR,—Mr. E. D. Brant's letter in your February 12 issue raises the question whether there is any serious element of risk in fitting inside door handles, as is generally advanced as a reason for retaining the present chilly arrangements.

During the late 1920's the Great Western Railway built a considerable number of corridor coaches with inside sliding handles, and many of these are still in service. Would it not be possible to deduce from records of accidents to passengers whether or not the inside handles have been less safe than outside ones ? The risk can hardly be great, for no steps have been taken to remove the inside handles.

The present arrangements make nonsense of refinements such as corridor heaters. As long as steam traction is with us, they add considerably to the problem of keeping trains clean. Surely we should not be too much bound by tradition.

Yours faithfully,

R. G. OAKLEY

46, Vaughan Road, New Brighton

Passenger Traffic in the North Eastern Region

February 22

SIR,—Mr. R. Bell is unrealistic in comparing, in your February 19 issue, diesel train miles with combined figures for passenger journeys for all forms of traction.

For the 52 weeks of 1959 the diesel train mileage, as Mr. Bell quotes, was 8,627,000, an increase of 3,011,000. Steam train mileage was 11,659,000, a reduction of 2,946,000. Electric train miles at 1,161,000 were 21,000 lower. Over-all, passenger train miles increased 45,000 or 0·2 per cent.

The passenger journeys for all forms of traction in 1959 were 60,847,193, a reduction of some 2,665,000 or 4·5 per cent on 1958. The receipts, however, were £10,556,217 or 1·4 per cent higher.

The North Eastern Region is as susceptible as any other business to the trade climate. Through and until the autumn of 1959 the textile and steel industries, so predominantly a feature of the Region, were adversely affected by trade recession. It speaks well for the attractions of the North Eastern travel schemes that, despite reduced public spending power for the major part of the year, the receipts improved rather more than the over-all increase in train mileage.

Yours faithfully,

C. AYERS
formerly Passenger Assistant to Commercial Officer

British Railways,
North Eastern Region, York

John Sewell, 1804-87

February 26

SIR,—The civil engineer and railway officer, John Sewell (1804-87), author of articles and books on railway and other subjects, is to figure prominently in a book now under preparation by an American author.

Might I ask whether one of your readers has a portrait which he is prepared to lend for reproduction in this work ?

Yours faithfully,

D. H. DE T. READE, MAJOR
Information Officer

Institution of Civil Engineers,
Great George Street, S.W.1

Czech-built Locomotives in Persia

February 22

SIR,—I refer to the Scrap Heap of October 23, 1959. From 1934 until the outbreak of war in 1939, Czech civil engineering contractors were constructing several major sections of the Trans Iranian Railway. The main firms were the Konstruktiva, a subsidiary of the Skoda Works, Krulis & Company, and Lanna.

The locomotives mentioned were part of the contractors' plant and remained in Persia, as the question of ownership was complicated after Czechoslovakia was occupied by Germany in 1939 and a Free Czech Government formed itself abroad with its seat in London.

Yours faithfully,

PAUL WURZEL

P.O. Box 6568, Nairobi

THE SCRAP HEAP

First Things First

As rescuers crawled to a woman who fell under the 7.15 p.m. Portsmouth train at Shoreham Station, Sussex, last night she sat up and said "I've lost my handbag.". . . Her injuries: a broken leg.—*From the "News Chronicle."*

Judgment in Camera

The Derby Railway Institute Photographic Society has defeated the Derby Co-op Camera Club in a "slide battle" by 280 points to 230. This was the first attempt at a competition for colour slides. A return contest will take place in the Railway Institute, Derby, on March 23.

U.T.A. Coat of Arms

The official blazon of the new coat of arms of the Ulster Transport Authority reads: "Vert. A bend argent between six earls' coronets or; and for the crest, on a wreath or and vert a winged horse rampant or charged on the shoulder with a dexter hand appaumé couped at the wrist gules; and for supporters, on the dexter a lion gules, and on the sinister an Irish elk proper, both gorged with a mural crown or." The green shield symbolises Northern Ireland, and the bend a road or railway. The coronets represent the six counties, as an earl traditionally ruled a county. The crest bears the red hand of Ulster. The supporters represent the connections with the United Kingdom and Ireland. Their mural crowns denote the county boroughs of Belfast and Derry. "Transportation is civilisation" has been suggested as a translation of the motto; the first use of the phrase was probably by Rudyard Kipling in 1905 in his story "With the Night Mail." Adoption of these arms is subject to grant by letters patent from the College of Arms. They are to replace the existing emblem, a silver shield charged with a red hand.

Ulster Transport Authority coat of arms to replace present emblem

Fuel for the Fire

At Dartford Station, British Railways, Southern Region, two live incendiary bombs were found recently under the eaves of an old boiler house.

Excursion Travel

Between the trains that carry humanity to and from its daily task and the trains that bear the label "excursions" there are both similarities and differences. . . . There is little difference between the pushing and crowding on the train that stands for duty and the pushing and crowding on the "special" that is bound for an intoxicating world. . . . [The excursionists'] laughter, their tolerance of the packed carriages—a state of affairs which, on weekdays, would be the cause of pained silent disapproval—their eagerness to enjoy and make the most of things are exaggerated out of the proportions of ordinary life. There have been ugly stories of wanton and malicious damage which cut across and destroy this perhaps over-idyllic picture, and it is to be hoped that no more is heard of them when the next round of Cup-ties is played and the "excursion" is once again free to perform its own particular brand of magic.—*From "The Times."*

Oh! Madam Porter!

A good deal of heavy manual work is done by women in India, especially by members of robust hill tribes in the North. Applications by women for registration as porters at stations are a new development. There were found recently to be 340 women porters on the Western Railway, including 45 at Bhavnagar, in Saurashtra (Kathiawar); 150 on the South-Eastern; 10 on the Northern; and none on the other Indian railways.

Minute Exactitude

There are large second hands on the clocks at Netherlands Railways stations, not because train operation is quite to the nearest second, though standards of punctuality are consistently high, but because the Dutch businessman doesn't like to waste time waiting for trains and is accustomed to arriving during the last minute before departure. The minute hands on the clocks jerk forward one whole minute each minute, and the second hand is mainly to show whether the next jerk, the one that matters, is almost due.—*Mr. J. A. Rosser at a recent meeting of "The Electric Railway Society."*

Ghost Train

The statement by the General Secretary of the Tanganyika African Union, Mr. C. S. K. Tumbo, that because of the railway strike in Tanganyika, East African Railways had not succeeded in running a single train to or from Dar-es-Salaam prompted *The Tanganyika Standard* to publish these verses:—

I heard the siren moaning,
I saw the headlamp shine
And watched with awe the up-down mail
Come creeping o'er the line.
The wheels were running backwards;
The front faced to the rear;
But those who watched with bated breath
Could scarce withhold a cheer.

It looked all white and ghostly,
But I'm prepared to swear
This was what Mr. Tumbo called
The train that wasn't there.
It rattled through Ilala
Facing stoutly to the back,
And with a warning whistle
Started tearing up the track.

Because the up-down mail train
The Union averred
Was strike-bound at the depot
And thus neither seen nor heard,
The whole affair was rather odd
As you must all agree
Because if not a railway train
Then what train did I see ?

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Reduced Fares in Transvaal

Fares on newly electrified lines in the Transvaal have been cut by up to 60 per cent, first class. The faster running made possible by electrification has resulted in timings which allow of daily and week-end travel over longer distances to and from Johannesburg and other centres.

Fruit from Cape to Congo

Refrigerator wagons of South African Railways have been conveying fruit from the western districts of Cape Province to Rhodesia and the Belgian Congo. The journey to Elisabethville, more than 2,200 miles, takes nine days, including the day of loading. To Bulawayo the time taken is five days, and one day thence to Salisbury. During the 1958-59 season (November - May) the S.A.R. loaded nearly 1,200 wagons, or the equivalent in four-wheelers, to Rhodesia and the Congo.

RHODESIA

Re-conditioned Buffet Car

An air-conditioned buffet car, built in 1942 and recently re-built, is now running in passenger trains to and from Bulawayo on the Lourenço Marques route. The car is the property of the Mozambique Railways. Most of the work of re-conditioning was done in the Mozambique Railways shops at Lourenço Marques, but certain modifications were carried out by the Rhodesia Railways at Bulawayo. The car is staffed by Rhodesia Railways Catering Department. The exterior is painted in the Mozambique Railways maroon livery. The interior panelling is grey, with a frieze depicting wild life in Africa. The bar counter and kitchen are equipped with mechanically-operated refrigerators. To comply with customs regulations there are separate stores for Rhodesian and Mozambique alcoholic drinks.

EAST AFRICA

Effects of Tanganyika Railway Strike

The railway strike in Tanganyika and in particular its effects on the territory's cotton crop have been discussed in Dar-es-Salaam in talks between Government officials and Mr. J. R. Farquharson, General Manager of East African Railways & Harbours. It is reported that the strike has interfered with the movement of the cotton crop.

INDIA

Bolts on Carriage Doors

Bolts are not to be provided for doors of third class general compartments, as they might be misused by passengers wishing to exclude others when room was available. Latches for bolting from inside are to be provided in ladies' compartments in third, as in other classes.

New Construction Under Third Plan

The Chairman of the Railway Board, Mr. K. B. Mathur, has pointed out in an address to the Bengal National Chamber of Commerce that the amount of new railway construction under the Third Five-Year Plan would depend on the Planning Commission's allotment to the railways. The amount of which has not yet been announced. The several State Governments, which have been asked by the Railway Board to submit suggestions for new lines, have joined or are forming plans. The cost of all the new lines proposed is believed to exceed greatly the amount likely to be made available for this purpose, as opposed to improvements to existing lines.

NEW ZEALAND

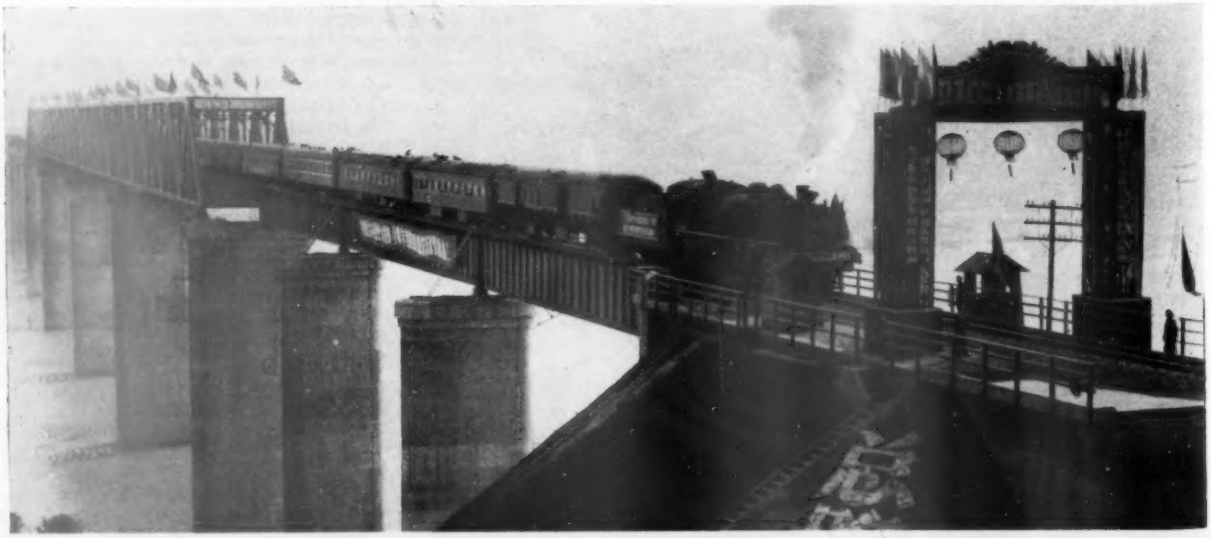
Wellington-Auckland Test Run

A test train of four passenger vehicles hauled by two 70-ton 750-h.p. Class "DG" English Electric diesel-electric A1A-A1A locomotives coupled in multiple unit was run on February 16 over the North Island main line from Wellington to Auckland. The object was to obtain data for determining a schedule and power and other requirements for a fast diesel railcar or multiple-unit train service by day between the two cities. All speed restrictions were observed and a timing of some 11½ hr., or 2½ hr. less than that of the "Night Limited," was achieved on the 3-ft. 6-in. gauge track over the 420 miles through elimination of some customary stops and through the additional power available on ascending gradients. No very high speeds were attained. Passengers in the test train included, besides Mr. A. T. Gandell, General Manager of the New Zealand Government Railways, Mr. M. Moohan, Minister of Railways. The railcars or multiple-unit trains for the new service are expected to be built in Britain.

CHINA

Yangtse Bridge Opened at Chungking

The bridge over the Yangtse at Chungking is now open to traffic. The illustration shows the inaugural train, crossing the bridge. The 2,700-ft. structure links the Chungking-Chengtu with the Chungking-Kweiyang Railway. When completed, these railways will form



The first train crossing the bridge over the Yangtse at Chungking, linking North and Central China with the South

sections of a trunk line between Peking and South China. It was designed by Chinese engineers, using steel manufactured in China.

CANADA

C.N.R. Steamer Service to Newfoundland

The Canadian National Railways operates a regular ferry service between Port aux Basques, Newfoundland, and North Sydney, Nova Scotia. The mv. *William Carson*, which entered daily service in 1958, last year carried 52,251 passengers between these ports and transported 13,686 road vehicles.

BOLIVIA

Railway Fares Dispute

Some 300 railwaymen demonstrated noisily in central La Paz on February 9 to demand the return of the British owned Bolivia Railway Company. They were protesting against a 25 per cent increase in railway fares ordered by the new owners, the Bolivian Government.

BRAZIL

Progress of Railway Reforms

Rede Ferroviaria Federal S.A., which incorporates 18 of Brazil's 41 railways, took delivery of 71 diesel-electric locomotives in 1959, bringing the proportion of diesel traction to 56 per cent of the total. It withdrew 500 steam locomotives from service, and ordered 120 railcars, 200 steel passenger coaches and 21 dormitory cars. During the last four years the government has invested 8,600 million cruzeiros in the construction programme of the National Railway Department and 29,500 million in reforms by R.F.F.S.A.; 13,000 million will be invested in 1960

ARGENTINA

Electric Coaches for Sarmiento Railway

Eleven electric motor coaches for the suburban services of the Sarmiento Railway have arrived in Buenos Aires aboard the Japanese vessel, *Kanto Maru*. These are similar to the 55 already in service and were built by the Kawasaki Rolling Stock Mfg. Co. Ltd. of Kobe.

UNITED STATES

New Entiat Bridge, G.N.R.

The level of the Columbia River in the neighbourhood of Wenatchee in Washington State is being raised by no less than 78 ft. by the construction of yet another barrage, the Rocky Reach Dam. As a result a 24-mile length of the Wenatchee-Oroville branch of the Great Northern Railway is having to be relocated above the new level. This has entailed the building of a new high-level bridge over the Entiat River near Entiat, as the site of the old truss-span bridge will be inundated. In accordance with the latest American practice of using plate-girder spans of greater length than is usual in Europe, the new bridge has three of these deck-spans each 120ft long. The very deep girders each weigh 68 tons.

U.S.S.R.

Moscow-Vnukovo Rail Link

Plans for a nine-mile overhead railway, linking the international airport at Vnukovo with the south western suburbs of Moscow, are being prepared by the passenger transport department of the Moscow Soviet. Trains will run on this railway at speeds of up to 100 m.p.h., and the journey Moscow-Vnukovo will take only 10 to 12 minutes, including a number of stops.

The overhead railway will run from the airport to one of the Moscow underground railway stations. The track will be laid on trestles supported by reinforced concrete props 33-40 ft. high and spaced about 33 yd. apart. The railway will have streamlined coaches, 60-65 ft. long, each seating 75 passengers. The trains will travel at a height of nearly 20 ft. above the ground, so that other forms of transport can pass underneath.

Publications Received

Guide for Buyers: British Engineers' Cutting Tools. Sheffield, 10: National Federation of Engineers' Tool Manufacturers, Light Trades House, Melbourne Avenue. 8¾in x 5½in. 72 pp. Price 5s. —In four main parts the largest of which is an alphabetical list of members of the Federation with key letters to indicate the affiliated associations concerned with their product groups and listed elsewhere in the book. To help overseas buyers to locate suppliers in this country there are alphabetical lists of tools in English, French, German, and Spanish, all similarly keyed for cross-reference purposes. Two short sections deal respectively with trade-marks in the tool industry and British Standards for engineers' cutting tools. The letterpress is clear and printed in black and red with a well-spaced layout for easy reference.

Choice of Careers : The Railways. H.M. Stationery Office. 8½ in. × 5½ in. 48 pp. Paper covers. Illustrated Price 2s.— This booklet, No. 88 of the "Choice of Careers" series produced by the Central Youth Employment Executive, prepared by the Ministry of Labour and the Central Office of Information, and intended largely for school-leavers, outlines the duties of different grades in the railway service. There is a brief description of the railway organisation, with indication of the types of work for which each department is responsible. Reference is made to the possibility, in certain circumstances, of transfer from one department to another, especially in the clerical, skilled, or professional grades. Details are given of the method of entry to the various departments, the training involved, including apprenticeships, and opportunities and prospects for promotion. Further information on some of the skilled jobs mentioned is given, in other booklets in the series dealing with specific crafts or professions, including catering and police. The many photographic illustrations of railway work are well chosen and reproduced.

Beclawat Training Centre.—A booklet published by Beckett, Laycock & Watkinson Limited describes the purpose and functions of a new training centre established within the Research & Development Department at the main works of the company in London. It should be of interest to parents who wish to examine attractive careers associated with the transport industry and offering to boys about to leave school a varied training in light engineering with good facilities for theoretical study. There are brief descriptions of the selection procedure, the three to five years of instruction leading to advanced machining, production methods, welding, heat treatment, and so on, and of the pensionable positions offered on completion of training, with opportunities for further advancement within the Beclawat manufacturing and selling organisation. The latter includes units in Australia, Canada, India, South Africa, and Sweden. The booklet includes illustrations of several aspects of apprentice training and there is a brief history of the company since its formation in 1912. Copies may be obtained from Beckett, Laycock & Watkinson Limited, Acton Lane, London, N.W.10.

Dine and Drive Through Britain.—This concise guide to good restaurants in Great Britain and Ireland has been published by Victor Britain Limited, organisers of the Autobritn car hire system at railway stations and other arrangements for hiring self-drive or chauffeur-driven motorcars, in a completely new version. It contains, in the form of a folder, with maps of Britain and of London, a list of restaurants and inns, and shows the new motorways. Some 400 establishments are listed, and cross-indexed with a gazetteer. The guide has been compared to the French "Guide Michelin," which it resembles in the impartiality of the committee selecting the hotel or restaurant. No advertising is accepted. As part of the Victor Britain service to visitors planning to drive through England, Scotland, or Wales, a copy will be air-mailed free of charge to any part of the world. Copies may be obtained from Victor Britain Limited, 12a, Berkeley Street, London, W.1.

Athermos Boxes.—A four-page folder from Soc. Internationale des Applications Isothermos, 60 avenue de la Grande Armée, Paris, 17c, gives a précis of the advantages of the Athermos plain-bearing axleboxes with hydrodynamic full-flow lubrication, as used in all post-war French electric locomotives and other stock; and a folded insert gives an exploded view of the box and all its constituents.

Streamlining the Railways in North Eastern England

The problems connected with closure of unremunerative lines, stations and services, and the measures adopted to overcome these difficulties

By R. W. Hall

Head of Traffic Facilities Investigation Sub-section Traffic Headquarters, York

OUR railway predecessors' hazy notions of cost accountancy and transport economics must have made it most difficult for them to assess whether a service was paying its way. If the balance sheet showed a reasonable profit there was little incentive to find out if large profits on some lines and services were hiding losses on others.

Early Streamlining

Even so, passenger train services were withdrawn in the first decade of the extensive development of railways. The service between Waskerley Park and Crawley for Stanhope, which first ran on April 1, 1846, last appeared in Bradshaw for December, 1846. A slightly less fleeting service was that which was operated between Thirsk Junction and Thirsk Town. It ran from June, 1848, to December, 1855.

Today, when everyone with the slightest interest in the withdrawal of a service is rightly consulted, one wonders how much notice the Thirsk residents were given before the trains ceased to run. Very little, one would imagine.

It seems most unlikely that certain lines and stations ever paid their way, but the first extensive campaign to deal with them did not take place until the late 1920's and early '30's. Competition from electric tramways had been felt for many years in a few urban areas, but after the 1914-18 war, the fast-developing motor omnibus transport began to constitute an effective nation-wide competitor to the railways, particularly on short runs. The net revenue of certain train services and stations quickly suffered, and further competition from road freight transport seriously affected the finances of the four main-line railway companies. Ignorance, or reluctance to accept the fact that some parts of the companies were not economic, yielded to a realisation that operating ratio would improve and profits would increase if unremunerative services were withdrawn.

Acquisition of Bus Interests

The decisions of the railway companies to withdraw passenger services completely in certain areas, and to eliminate them at certain stations on lines still retaining through passenger traffic, were also influenced by the buying of interests in bus companies. To some extent, dividends resulting from these purchases compensated for the loss of railway passenger revenue.

Nowhere was the campaign of retrenchment carried out more thoroughly than in North Eastern England. At the time under consideration, passenger services were withdrawn by the London & North Eastern Railway from the lines by listed in the following table:—

Year	Service
1929	Cargo Fleet–Eston Wrangbrook Junction–Wath West Gosforth–Darras Hall
1930	Selby–Cawood Chevington–Amble Hexham–Allendale Alnwick–Coldstream Wakefield–Barnsley
1931	Melmerby–Masham Malton–Gilling Sherburn House–Durham (Elvet) Bradford–Shipley (via Idle) Stockton–Wellfield (Wynyard)
1932	South Howden–Cudworth

During the same period the London Midland & Scottish Railway withdrew passenger train services from the following branch lines which are now covered by the North Eastern Region :—

Year	Service
1929	Sowerby Bridge–Rishworth Greetland–Stainland
1930	Huddersfield–Kirkburton Skipton–Grassington

During 1929-32 passenger facilities in this area were withdrawn from only 18 stations on lines which continued to be used by passenger trains.

York–Scarborough Withdrawals

Twelve of these stations were contained in the remarkable scheme under which in September, 1930, passenger facilities were withdrawn from all stations between York and Scarborough except Malton and Seamer. This was 20 years before the full development in Britain of the practice of closing intermediate main-line stations with small receipts. This practice eliminated losses incurred at each station and improved services for through passengers.

The withdrawal of the South Howden–Cudworth service in 1932 apparently represented the limit to which the London & North Eastern Railway was prepared to consider retrenchment of its passenger services. Apart from the withdrawal of the Blackhill–Tow Law, Blackhill–Durham (via Lanchester) and the Bishop Auckland–Spennymoor services in 1939, no other lines lost passenger services until nationalisation in 1948. From 1932 to 1939, passenger facilities were permanently withdrawn from only 11 stations, in what is now the North Eastern Region of British Railways. From 1940 to 1947, the number of stations so treated was only nine.

The real progress in the withdrawal of uneconomic services has come since nationalisation. Some of this pruning may have been long overdue, but most of it has resulted from the rapid post-war development of competing forms of public and private transport.

Road Transport Competition

In terms of real value, public road transport of passengers has become progressively cheaper per passenger-mile, and private mechanical transport is now within the reach of a growing number of people. Road competition for the carriage of freight has increased each year and has extended to every commodity which the railways carry. At the same time, both railways and users have been able to use road transport for collection and delivery between points far more distant than was possible in horse-and-cart days.

Thus, since 1948, there have not only been further passenger withdrawals, but for the first time since railways were built, extensive closures of freight depots and the complete closure of many lines.

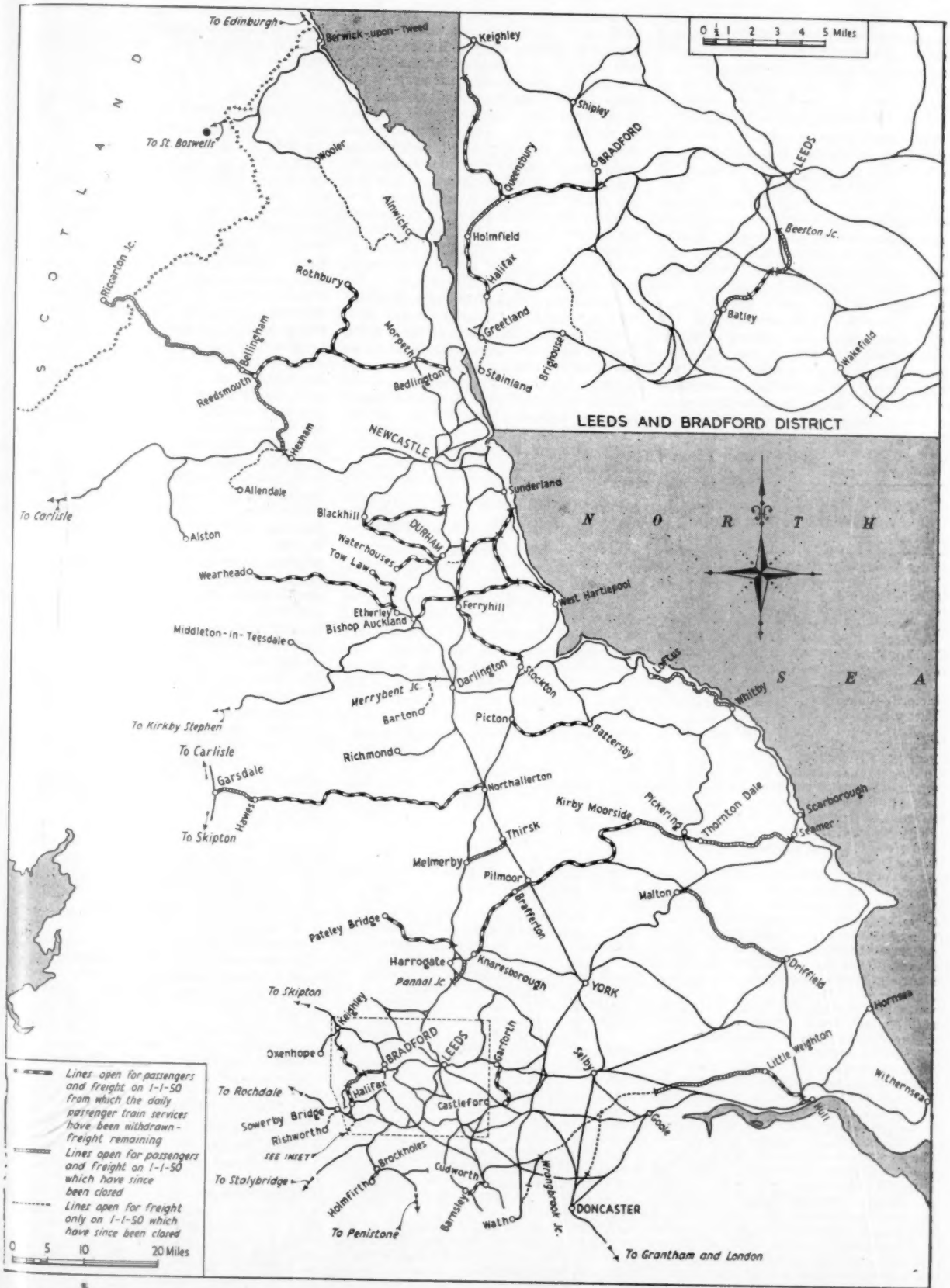
Attempts by British Railways to withdraw uneconomic services are invariably opposed by the public living or working in the area concerned. The one constant note struck in this storm of disapproval is the expectation that a nationalised transport undertaking should provide a service for the community whether or not the cost of providing that service is covered by the revenue it earns.

Another argument is occasionally heard: that the community is best served when each form of transport is in fair competition with the rest, and each transport unit is required to pay its way.

Transport Act Requires Profit

As far as the British Transport Commission is concerned this argument is purely academic. The directive in Section 3 of the 1947 Transport Act requires the Commission to "so conduct that undertaking . . . as to secure that the revenue . . . is not less than sufficient for making provision for the meeting of charges properly chargeable to revenue taking one year with another."

The exponents of the "railway as a public service" school could still argue, though, that uneconomic services should be continued, subsidised by the profitable portions of the business. They were encouraged in this view by the general directive, also in Section 3 of the 1947 Act, that the Commission was to pro-



Map of north-eastern England, showing lines which have been closed and from which passenger services have been withdrawn during the period **1950-59**

mote the provision of "an efficient, adequate, economical, and properly-integrated system of public inland transport in Great Britain, for passengers and goods."

General Directive

The 1953 Transport Act clarified the position by replacing the general directive in Section 3 with the statement that "it shall be the general duty of the Commission . . . to provide railway services for Great Britain," and "to provide in such places and to such extent as may appear to the Commission to be expedient other transport services," leaving the duty to cover charges by revenue unaltered. This Act also swept away any vestige of a B.T.C. monopoly that may have existed in certain spheres of inland transport after 1948, so that, faced by fierce competition in every part of its undertaking, the Commission is unable to produce large surpluses in some sections to subsidise losses in others.

So it can be said that, from January 1, 1948, the form of organisation and financing decided for the British Transport Commission by the Nationalisation Act implied that uneconomic parts of the undertaking must be eliminated, and any doubt was swept away by the 1953 Act.

The following list of branches which have been closed, and from which passenger services have been withdrawn, illustrates the energetic manner in which the problem has been tackled by this Region since 1950, when the policies of the British Transport Commission began to be felt.

Consistency

The record is remarkably consistent, for although naturally the more obvious cases were cleared up first, the staff responsible for this work has consistently built on its own and its predecessors' experience. In recent years also, the worsening financial position of British Railways has resulted in a greater appreciation of the necessity for this process in the minds of railwaymen, Government, and public.

These closures and withdrawals have improved annual net revenue by £511,318. The value of the redundant materials, after allowing for the cost of recovery, has been estimated at £836,971. The map on page 275 illustrates the effect of the policy.

Other Withdrawals

In addition to the stations on the lines referred to, from 1950 to the present day, passenger facilities have been withdrawn from 75 stations, and 34 passenger and freight stations and 32 freight stations have been closed, producing a total annual saving of £98,000. Following the sound principle governing the Scarborough line closures made in 1930, emphasis has been laid on the closure of wayside stations on lines over which it is intended to run improved express services. Thus, in 1958, passenger facilities were withdrawn from 21 stations on the East Coast main line between Shaftholme Junction and Marshall Meadows.

After complete or partial closure has been decided, the case must be proved before one of the Area Transport Users' Consultative Committees established by the Transport Act of 1947. These committees were set up "to consider, and where necessary make recommendations, affecting the services provided by the Commission." They do not possess executive power, but the English Area Committees refer their findings to the Central Transport Consultative Committee, and this body, with the Scottish and Welsh Committees, is responsible to the Minister of Transport, who can give a directive to the Commission. The railway regional managements are careful to put only clear-cut proposals to the Consultative Committees; which endorse almost all cases. Where proposals are not approved, they are immediately dropped by the railways.

The touchstone on which the railway management makes its decision to withdraw a public facility and attempts to convince the Consultative Committees, its own staff, and the public, is the effect which the proposal would have on railway net revenue.

This calculation is made by assessing the savings which directly follow from the proposal under consideration; from this figure is deducted the losses of gross revenue estimated to result from the change, plus any additional costs to be incurred.

The economies and losses can generally be grouped as follow :—

Economies

Staff costs which would disappear from the paybill.

Fuel and lubrication savings arising from reduced passenger or freight train-mileage.

Reduced maintenance of locomotives and rolling-stock arising from reduced train-mileage.

Saving claimed for reduced renewal expenditure resulting from the removal from stock of locomotives, wagons, or passenger coaches.

Reduced expenditure on mainten-

DATES OF CLOSURES OR WITHDRAWALS

Service	Passenger Service withdrawn	Freight Services withdrawn	Passenger and Freight Services withdrawn
Morpeth–Bedlington	1.4.1950		
Thornton Dale–Seamer			3.6.1950
Malton–Driffield	3.6.1950	20.10.1958	
Merrybent–Barton		6.7.1950	
Knaresborough–Pilmoor	25.9.1950		
Brafferton–Pilmoor		1.3.1952	
Hexham–Allendale		17.11.1950	
Middlestown Jct.–Dewsbury			
(Savile Town)		1.12.1950*	
Garforth–Castleford	22.1.1951		
Harrogate–Pateley Bridge	2.4.1951		
Weatherhill & Crawley Inclines ...		28.1.1951	
Pannal Jct.–Stonefall			26.5.1951
Croft Jct.–Black Carr	10.9.1951		
Durham–Waterhouses	29.10.1951		
Stockton–Ferryhill–Spennymoor ...	31.3.1952		
Hart–Murton–Ferryhill	9.6.1952		
Rishworth Branch :			
Ripponden–Rishworth		20.3.1952	
Sowerby Bridge–Ripponden ...		1.9.1958	
Brighouse Branch		4.8.1952	
Morpeth–Rothbury–Reedsmouth...	15.9.1952		
Sunderland–Pittington	5.1.1953		
Pilmoor–Kirby Moorside	2.2.1953		
Kirby Moorside–Pickering ...			2.2.1953
Alnwick–Wooler		2.3.1953	
Etherley–Wearhead...	27.6.1953		
Beeston Jct.–Batley			6.7.1953*
Hickleton–Thurnscoe–Wath ...		27.4.1953	
Durham (Elvet) Branch		11.1.1954	
Northallerton–Hawes	26.4.1954		
Moorhouse & South			
Elmsall–Hickleton		31.5.1954	
Picton–Battersby	14.6.1954		
Picton–Stokesley		1.12.1958*	
Bradford–Halifax–Keighley ...	23.3.1955	18.5.1956*	
Blackhill–Birtley	23.5.1955		
Hull & Barnsley :			
Hull–South Howden	1.8.1955		
Little Weighton–Wrangbrook ...		6.4.1959	
Chickenley Heath Branch ...		26.3.1956*	
Hexham–Riccarton	15.10.1956	1.9.1958*	
Loftus–Whitby West Cliff ...			3.5.1958
Skinningrove Zig Zag		1.5.1958	
Barnsley–Cudworth	9.6.1958		
Aire Jct.–Bullcroft		20.10.1958	
Hawes–Garsdale			16.3.1959
Melmerby–Thirsk			14.9.1959
Greetland–Stainland		14.9.1959	
Brockholes–Holmfirth	2.11.59		

* partial closure

ance and renewal of permanent way, buildings, bridges, signalling and telecommunication equipment, cranes, weighbridges, and all the other fixed equipment.

Losses and Additional Costs

Gross revenue now earned by passengers and freight forwarded and received on the line, or at the station under review, which is expected to be lost on closure.

Additional costs to be incurred, i.e., increased fuel for diverted trains, additional staff at depots taking over traffic from the closed stations, and additional road cartage costs.

It is important to distinguish this calculation of the effect of closure from the assessment of whether or not a line or station is running at a profit or loss. Although closure of an unremunerative line or station will usually improve net revenue, this is not always the case. Conversely, it is theoretically possible for the closing of a profitable line to improve the net revenue position. The latter is most unlikely, but the former is one of our most difficult and constant problems.

The main reasons for the apparent paradox are as follow:—

1. Occasionally not all the staff cost properly debited to the line in a balance sheet can be claimed as a saving to follow from the closure.

2. Similarly, the elimination of branch train services does not necessarily mean that locomotives and rolling-stock can be claimed as saved from stock.

Both these reasons centre on a common difficulty: that many small branches on British Railways are not completely self-contained regarding staff, locomotives, and rolling-stock. Thus, when branch services are withdrawn, the other work of the staff and equipment remains, often at peak periods.

3. It is not normally considered reasonable to claim savings on interest charges resultant on closure of a line or station.

4. In assessing the profit or loss of a railway unit, only a part of the gross revenue of earnings is entered to its credit. Nevertheless, it is often necessary, when assessing the effect of closure, to assume that all revenue earned by certain flows of traffic would be lost.

The real problem here is that, while claims can only be made in respect of savings on the line or at the station to be closed, there is an assumed loss of total gross revenue on some passenger and freight traffic dealt with at that point. If, as in a recent case, it is assumed that traffic earning £8,000 a year will be lost on closure, there might be economies at points off the branch in the use of rolling-stock, locomotive fuel, and shunting costs. On the other hand, economies off the branch might be nil, because of the small proportion of traffic to the branch related to that moving to the last marshalling yard before the branch. Nevertheless, these and similar items may well produce an aggregate of definite savings.

Reduced Administrative Load

A similar argument of cumulative economy can be used in connection with the slightly reduced load of administrative work which results from each closure. Each line and station closed represents a lessening of the work of District and Head Offices, and a number of closures should be followed by economies in staff and accommodation.

In summary, the problem would appear to be that, so far as the North Eastern Region of British Railways is concerned, no practical method has been devised of assessing the savings which might follow from a closure away from the actual line or station being considered. Until this can be done it is difficult to see how quite a number of lines and stations which are running at a loss can be closed. Even if management was prepared to withdraw facilities without proving clear financial justification, it is most unlikely that this action would be approved by the Consultative Committees.

Cross-Subsidisation

Possibly this is not too serious a matter, for we can hardly expect to close every portion of an undertaking losing money; a limited amount of cross-subsidisation can be tolerated. It is most difficult and often costly to re-open closed lines, while lines left open can always be re-examined with a view to closure. It is most important to remember when studying the normal assessment of the effect of closure on net revenue, that for the foregoing reasons there usually is a hidden bias against proving that closure would improve net revenue.

Closing lines and stations and withdrawing facilities can never be regarded otherwise than sadly by anyone connected with railways, but it is surely just as indicative of a live business that it is able to contract as that it can expand. The tendency toward more compact railway systems in the second half of the twentieth century, with modern methods matching the latest equipment, is an exciting prospect.

Several more lines and stations are expected to be closed or to lose their passenger services in the Region during the next 12 months and, toward the end of 1960, the future shape of the railway system in this part of the country should be clear. This more concentrated network, suitably modernised, will then be well placed to carry into the future the tradition of lively, efficient railway operation in North Eastern England.

CYCLONE DAMAGE TO RAILWAY IN MAURITIUS.—Severe damage was caused by the recent cyclone to track and installations of the Mauritius Government Railways. The 4-ft. 8½-in. gauge system, with a route mileage of 82, conveys only goods traffic; the passenger service was withdrawn in 1956.

BLUEBELL RAILWAY CO., LTD. FORMED.—A company, Bluebell Railway Limited, has been registered with a nominal capital of £100 in £1 shares to acquire the track between East Grinstead and Lewes, Sussex, and formerly operated by British Railways, Southern Region. The company has been formed by the Bluebell Railway Preservation Society. Its Directors are the Society's Chairman, Mr. John Leroy, and two trustees, Capt. Peter Manisty and Mr. C. C. Vacher. The society hopes to start a service on May 1 with 2s. 6d. fares.

INDIAN STATE RAILWAYS ANNUAL REUNION AND DINNER.—The annual reunion and dinner of the officers of the Indian State Railways (India and Pakistan) will take place at the Rembrandt Rooms, London, S.W.7, on May 30. The reunion tea will be held from 4 to 6 p.m., and the dinner at 7 p.m. for 7.30. The chair will be taken at dinner by Mr. G. A. Rowlerson, late Member (Transportation) Indian Railway Board. The principal speaker will be Brigadier C. A. Langley, who was seconded to the then Great Indian Peninsula Railway in 1927-33, served in India as D.Q.M.G. (Movements & Transportation), Allied Land Forces, South East Asia Command, in 1943-45, and is now Chief Inspecting Officer of Railways, Ministry of Transport; he visited India in December, 1959, to attend the Enlarged Meeting of the Permanent Commission of the International Railway Congress Association. Applications for tickets should be made to Mr. Norman Calder, the East India & Sports Club, St. James's Square, S.W.1.

EXPRESS TRAIN DERAILMENT IN QUEENSLAND.—"Queensland Midlander" express travelling from Longreach in Western Queensland to Rockhampton left the rails and crashed through a bridge into a flooded creek near Rockhampton, 430 miles north of Brisbane on February 26. Seven passengers were killed and many injured.

EXCURSION TRAINS FOR SPECIAL SPORTING EVENTS.—London Midland Region of British Railways has announced that, after a careful review of the freight traffic situation for the month of March, it intends to run a service of excursion trains for some special sporting events. There will be excursions for the sixth round and semi-final of the F.A. Cup on March 12 and 26, for the Ladies hockey international at Wembley on March 12, and the Grand National on March 26. Other normal and special excursion services which would react on the efficiency of its freight services will not run. Full details of the excursion trains to be run will be given to the public as much in advance as possible.

INCREASE IN INDUSTRIAL OUTPUT IN JANUARY.—Provisional figures show that industrial production in Britain in January was higher by 10 or 11 per cent compared with a year previously. The increases in November and December were 9 per cent over the corresponding months of 1958.

CHELTENHAM TO HONEYBOURNE LOCAL SERVICE TO BE WITHDRAWN.—British Railways, Western Region, is to withdraw local passenger train service between Cheltenham St. James and Honeybourne from March 7. This will involve the complete closure of Gretton, Hayles Abbey, Laverton, Willersey, and Weston-sub-Edge Halts. Passengers will no longer be dealt with at Bishop's Cleeve, Winchcombe, Toddington, and Broadway Stations, which, however, will remain open for the handing-in and collection of parcels. There will be no change in the existing arrangements for dealing with goods traffic. Bus services operate in the area.

British Railways Type "2" Diesel-Hydraulic Locomotive

North British design for Western Region with N.B.L.-M.A.N. 1,100-h.p. engine and single Voith-N.B.L. transmission unit

THE Type "2" 1,100-h.p. diesel-hydraulic locomotives being delivered by the North British Locomotive Co. Ltd., to British Railways, Western Region, incorporate a basic power unit and hydraulic transmission design similar to those which power the Type "4" A1A-A1A 2,000-h.p. units supplied in 1958 and described in our February 21 issue of that year.

Fifty-two of the Type "2" locomotives were ordered by the British Transport Commission in 1957, and the series will be numbered D6306–D6357. They have B–B axle notation and weigh 65 tons. In general construction they follow the prototype design also by the North British Locomotive Co. Ltd. for six 1,000-h.p. diesel-hydraulic locomotives built by that company and delivered to the Western Region during 1959, numbered D6300–D6305.

Design Variations

Apart from variations in the arrangement of auxiliary equipment and a reduction in weight—the prototypes weigh about 68 tons—one of the main differences between the two versions is that, whereas the original design incorporates an electrically-driven radiator fan and temperature control by Drayton regulator, the production version has a hydrostatic drive from an engine-driven pump with temperature-controlled fan speed regulation.

The N.B.L.–M.A.N. L12V18/21BS 1,100-h.p. diesel engine drives through a Voith–N.B.L. LT306r hydraulic transmission and cardan shafts to primary gear boxes on the inner axles of the bogies. Transmission to secondary gear boxes on the outer axles is also by cardan shafts. The diesel engine and hydraulic transmissions were built in Glasgow under licence by the North British Locomotive Co. Ltd.

Leading particulars are as follow :—

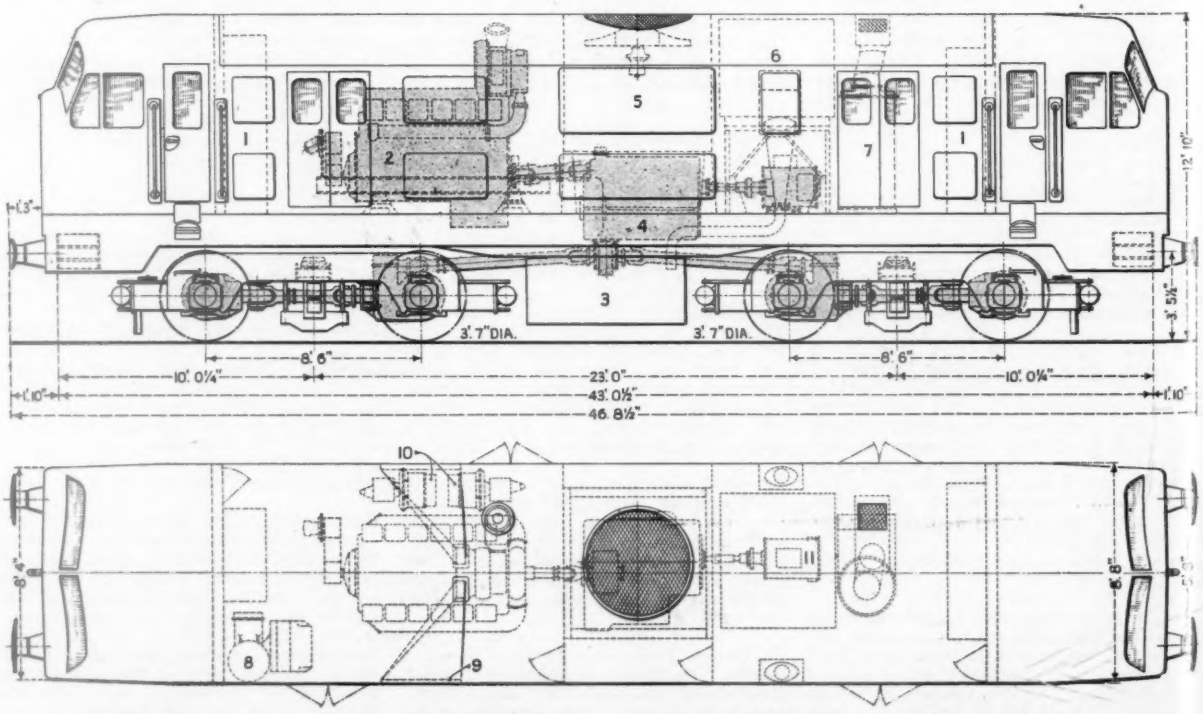
Axle notation		B–B
Weight in running order		65 tons
Starting tractive effort at 27.5 per cent adhesion		40,000 lb.
Maximum speed		75 m.p.h.
	ft	in.
Overall length	46	8½
Overall width	8	8
Overall height	12	10
Bogie centres	23	0
Bogie wheelbase	8	6
Wheel dia.	3	7
Fuel tank capacity		450 gal.
Boiler water tank capacity		500 gal.

As on the prototype locomotives, features in the design of the driver's cab are simplification of gauges and controls and maximum driving visibility. The gauges on the driver's desk are confined to a Smiths-Stone speedometer, Smiths vacuum gauge, brake-pressure gauge, and main reservoir pressure gauge. All instrument dials incorporate Smiths prismatic illumination to give uniform lighting. One warning light only is provided to signal any fault on any of three engines which may be operating, *i.e.*, with three 1,100-h.p. locomotives in multiple, or with one 1,100-h.p. in multiple with a 2,000-h.p. locomotive.

Brake Controls

On the left of the driver's desk is the vacuum brake for train braking and in the centre the straight air brake for the locomotive only. At the driver's right hand is the master controller which gives all track speeds on the movement of the power and the forward/reverse handles. The deadman's control is by pedal on the driver's side of the cab and push button control on the opposite side. An alternative means of control is provided on the driver's side by means of the press down controller handle. In addition to Trico-Folberth windscreen wipers, provision is made for a warm air flow, taken from the Smiths cab heating system, over the inside of the front windows to prevent misting.

Fitted on the rear bulkhead are the handbrake, Pyrene hand fire extinguisher, emergency alarm bell, food locker, hotplate, and the control for operating Pyrene foam extinguishers over the engine and train heating boiler. Cab lighting is of the J. Stone type and warning of



1 Control cubicle
2 Diesel engine
3 Water tank
4 Hydraulic transmission
5 Radiator
6 Fuel tank
7 Heating boiler
8 Compressor
9 Air intake filters
10 Exhauster
11 Dynostarter

Layout of equipment and principal dimensions of the 52 1,100-h.p. production locomotives

approach is given by two-note Desilux horns. The cab is sound insulated by means of fibre-glass packed in cavities in the bulkheads, cab sides and roof and also under the floor.

The cab shell is made by bolting together aluminium castings supplied by Lightalloys Limited, and the side structure and roof are formed from Kynal sections supplied by I.C.I. Limited, and aluminium sheeting. The construction of the roof is such that suitable access can be gained for maintenance purposes while doors and hinged panels are provided in the sides for minor overhauls. The cab windows are of the Beclawat type and the doors in the body sides have drop windows.

Fabricated-steel Underframe

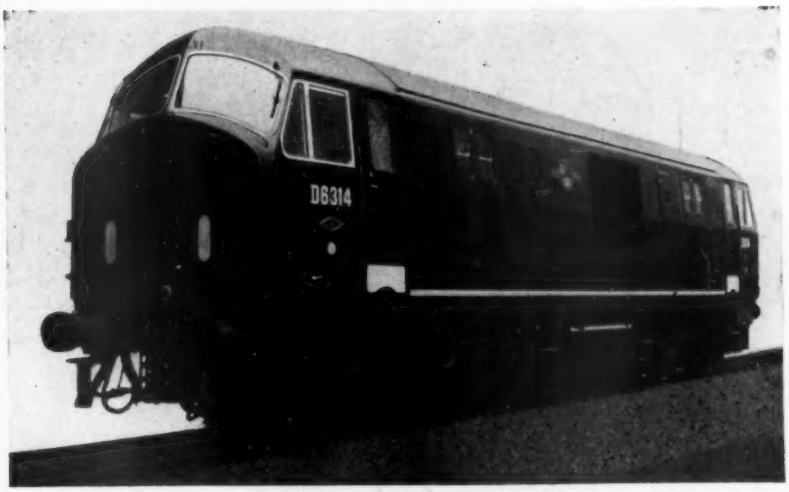
The underframe consists of main longitudinal members with cross stretchers all fabricated from steel plate. The buffers, drawhooks and screw couplings are of British Railways standard types. There are jumper cables, air and vacuum connections, and coach warming connections between the buffers.

In general the layout of the equipment is dictated by the location of the hydraulic transmission, the output flanges of which are positioned symmetrically on the locomotive centre line. The engine is positioned forward of the transmission with the dynostarter coupled to an auxiliary drive at the rear of the transmission. The fuel tank is located in the roof over the dynostarter to give a gravity feed to the engine and is off centre to allow a passageway on the left hand side of the locomotive. It has a capacity of 450 gal.

Engine-room Instruments

The engine instrument panel, mounted in the engine compartment, contains Smiths engine speed indicator, engine coolant thermometer, oil pressure gauge, transmission fluid thermometer, and fault indicator light. There is an engine-mounted generator for driving the tachometer and overspeed unit.

The train-heating boiler is located at the rear of the fuel tank. Robert Stephenson & Hawthorns Limited are supplying the Clayton steam generator for the first 20 locomotives and J. Stone & Co. (Deptford) Ltd., will supply the train-heating boilers for the remaining 32 locomotives.

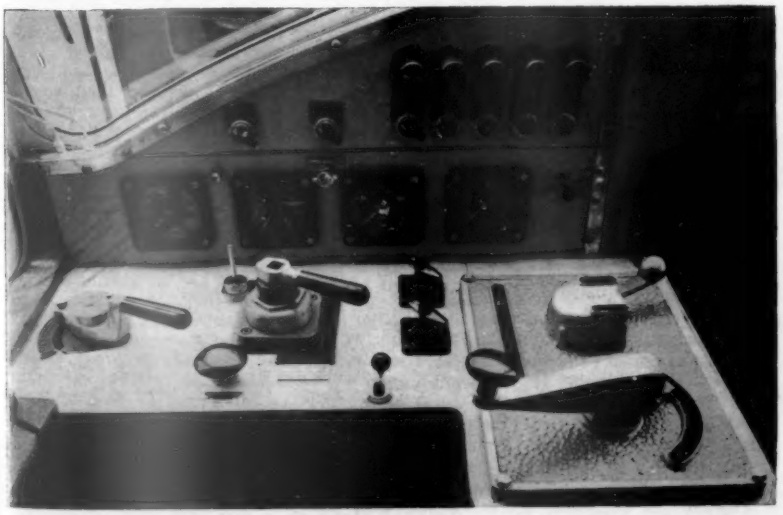


One of the 65-ton B-B 1,100-h.p. single-engine diesel-hydraulic locomotives

Bogie Construction

The weight of the underframe, superstructure, and equipment housed therein is borne on four side bearers, two at each bogie. These have spherical contact surfaces to provide for changing track conditions. The weight is transferred through the bogie bolster to laminated springs suspended from the bogie frame by means of swing links and planks. No weight is taken through the bogie pivot which deals only with pivoting, traction, braking, and transverse forces. The main bogie frame is of box section construction using mainly $\frac{7}{16}$ in. steel plates. The cross stretchers and headstock are riveted to the frame. From the bogie frame the weight is transferred to the roller bearing axleboxes by compensating beams and coil springs. Twenty-six of the locomotives have Timken axleboxes and twenty-six have S.K.F. axleboxes. Manganese steel liners are fitted on all axleboxes and horn guide faces. One bogie on each locomotive is fitted with Smiths axlebox-mounted mileage counter and Smith-Stone speedometer generator.

For the locomotive braking, a motor-driven Westinghouse compressor of type C.M.38 is fitted to provide air for the four brake cylinders on each bogie and for controls. Operation is by fully-compensated linkage with automatic slack adjusters to clasp brakes on each wheel. Two rotary exhausters, type FRU5½ x 10, driven by G.E.C. motors, maintain the vacuum for train braking. In the driver's cab is fitted the vacuum-controlled air brake valve which applies the train brakes and a proportional application of the locomotive air brakes. Provision is also made for the controlled locomotive braking required when hauling unbraked or partially-braked trains. All brake equipment with the exception of the compressors, is supplied by Davies & Metcalfe Limited. These locomotives have the Western Region type of Automatic Train Control.

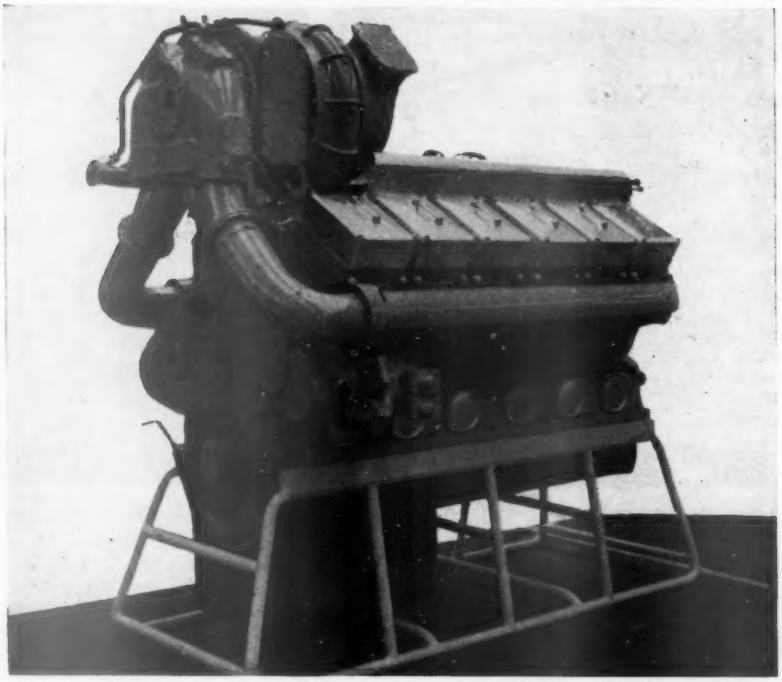


Driving controls and simplified instrument layout

Turbo-charged Engine

The four-stroke 12-cylinder, engine of 180 mm. bore and 210 mm. stroke has a Napier exhaust-gas turbo blower, type MS200/5 to give a boost pressure of about 10·4 lb. per sq. in. at full load, the maximum speed being 1,800 r.p.m. The rated engine output is 1,100 b.h.p. at 1,530 r.p.m., which corresponds to a brake mean effective pressure of 146 lb. per sq. in. The stated fuel consumption is 0·381 lb. per b.h.p./hour at full load using a fuel of calorific value 18,400 B.T.U. per lb.

The crankcase and cylinder blocks structure is a welded steel fabrication with the cylinders set at an included angle of 60 deg. Cast-steel transverse bulkheads carry the main bearing housings. The cast-iron cylinder liners are of the wet type and are clamped at the top by individual cast-iron cylinder heads and are sealed at the lower end by a sliding joint. The camshaft is located in the vee of the crankcase and is driven by spur



N.B.L.-M.A.N. 12-cylinder 1,100-h.p. quick-running engine with exhaust-turbo-driven pressure charger

timing gears at the flywheel end. To relieve the cylinder jackets of firing loads, tie bolts are fitted between the transverse bulkheads and steel castings which form the top of the cylinder blocks. An air chest is fitted in the vee between the cylinder heads. The two C.A.V. fuel injection pumps are mounted in parallel on a platform formed in the air chest and are driven through gears from the camshaft driving gear. The pre-combustion type cylinder heads are each fitted with the two inlet and two exhaust valves.

The hardened alloy steel crankshaft is carried in seven copper-lead steel-backed bearings, and bearings of similar construction are used for the big ends of the side-by-side connecting rods. These rods are drilled for pressure lubrication of the gudgeon pins. The engine is carried on a fabricated sub-frame which is protected from any main frame distortion by means of four Metalastik resilient mountings on which the sub-frame is mounted.

Engine Equipment

Lubricating oil from the main pump is first passed through the heat exchanger, then through an engine mounted Knecht filter before passing to the main bearings. An electric priming pump with B.T.H. motor ensures that oil pressure is built up in the main rail before the engine can start.

Starting is by means of an E.C.C. Dynostarter which is coupled to the auxiliary drive of the hydraulic transmission through a cardan shaft and Layrub coupling. The generator portion is shunt wound and gives an output of 35 kW. The output is held within close limits of 110V. by an automatic voltage regulator, irrespective of generator speed. A series winding is used for starting. Operation of the starting contactors is by means of an oil-pressure switch which closes when the electric lubricating pump has pressurised the system. Starting current is furnished by D.P. batteries, which also supply lighting and control current.

Induction air to the twin entry on the Napier blower is ducted from a panel on either side in each of which there are two Vokes filters. Flexible bellows are used between the sides and the blower to isolate vibration. The exhaust from the turbine is discharged to atmosphere through a venturi-form duct. In the throat of the venturi is a ring of holes through which air is extracted, with the exhaust, from the engine compartment.

Hydrostatic Fan Drive

The radiator compartment is a self-contained and sealed unit mounted above the hydraulic transmission. Air is drawn through a rectangular vertical bank of Serck radiator cooling elements at each side and discharged through the roof to atmosphere by means of a fan driven by a Serck-Behr-hydrostatic drive. The fan speed is temperature-controlled by a thermostat. An engine-driven centrifugal water pump circulates the water through the system. Auxiliaries absorb a total of 64 h.p.

Reversing gears contained in the main hydraulic transmission unit are operated through electro-pneumatic valves with a device to prevent reversal while the locomotive is moving. The transmission oil is cooled in a heat exchanger through which the cooling water is circulated, and this assists rapid warming of the engine system and brings the engine and transmission into their true interdependence.

The drive to the David Brown primary gearboxes on the inner axles of each bogie is by Hardy Spicer cardan shafts. Hardy Spicer cardan shafts also transmit the power from the primary gearboxes to secondary gearboxes on the outer axle of each bogie. The primary gearboxes are very large spiral bevel and helical gear double-reduction units, the gear ratio being 4·4 to 1. The nominal input speed is 2,625 r.p.m. and the torque at input to the primary gearbox is 10,760 lb. ft. Reaction torque is taken from each gearbox through an arm and rubber bushes to the bogie frame.

Principal sub-contractors include :—

Brakes	... Davies & Metcalfe Limited
Compressor ...	... Westinghouse Brake & Signal Co. Ltd.
Exhausters ...	... Reavell & Co. Ltd.
Master controller	... Sharp Control Gear Limited
Electrical control equipment	Westinghouse Brake & Signal Co. Ltd. British Thomson-Houston Co. Ltd. Square D Co. Ltd. Igranic Electric Co. Ltd. K.D.G. Instruments Limited
Cab heating ...	... Smiths Industrial Instruments Limited
Cab lighting ...	... J. Stone & Co. (Deptford) Ltd.
Aluminium castings	... Lightalloys Limited
Windows ...	... Beckett, Laycock, & Watkinson Limited
Radiator ...	... Serck Radiators Limited
Turbocharger ...	... Napier Limited
Fuel-injection equipment	C.A.V. Limited
Dynostarter ...	... Electric Construction Co. Ltd.
Air filters ...	... Vokes Limited
Batteries ...	... D.P. Battery Co. Ltd.
Primary gearboxes	... David Brown Corporation (Sales) Limited
Cardan shafts ...	... Hardy Spicer Limited
Train-heating boiler	... Robert Stephenson & Hawthorns Limited J. Stone & Co. (Deptford) Ltd.
Fire extinguishers	... Pyrene Co. Ltd.
Roller bearing axleboxes	British Timken Division of the Timken Roller Bearing Company Skefko Ball Bearing Co. Ltd.
Flexible engine mountings	Metalastik Limited

FEDERATED ENGINEERS LIMITED CHANGE OF ADDRESS.—With effect from March 1, the address of The Federated Engineers Limited will be: Locomotive House, Buckingham Gate, London, S.W.1. Telephone : Victoria 9955.

FIVE-DAY TICKETS TO BE ISSUED BY THE N.E. REGION.—The North Eastern Region of British Railways is to introduce a five-day ticket on February 29. This will be available for one return journey each day, at any time of the day, from Mondays to Fridays, inclusive, and will cost less than a weekly season ticket which allows unlimited travel for seven days. The ticket will be a card with five sections, the appropriate one being cancelled by being punched when the journey is made. It will be possible to buy the tickets in advance on either the Saturday or Sunday before the first day of travel.

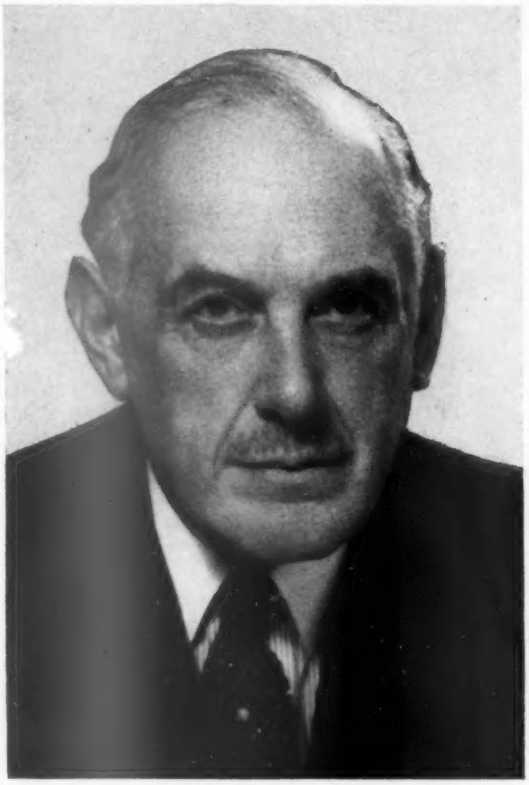
LEE FLOOD WATER CHANNEL UNDER CAMBRIDGE MAIN LINE.—Construction of a flood water channel for the Lee Conservancy Board at Tottenham involved clearing a passage for the Pymmes Brook system to be laid at right angles to and beneath the main London-Cambridge line of the Great Eastern Line of British Railways, Eastern Region. The railway was closed for 24 hr. on two Sundays to all through traffic. Shunting was permitted on pack supported by steel girders. When the work is completed, two new culverts will carry the periodic flow of water down to the River Lee. The contractors are the Alderton Construction Co. Ltd.

RAILWAY NEWS SECTION

PERSONAL

Mr. Allan Yeaman, Traffic Manager, Northern Division, Scottish Region, British Railways, retires on March 9, after 50 years of railway service.

Lord Chandos, D.S.O., M.C., Chairman of Associated Electrical Industries Limited, who, as recorded in our February 26 issue, has been appointed President of the Locomotive & Allied Manufacturers' Association of Great Britain, was born in 1893, and was educated at Eton and Trinity College, Cambridge. He joined the Grenadier Guards in 1914 and served at the Front from 1915 until wounded in 1918. He was awarded the D.S.O. and M.C. Lord Chandos became Managing Director, British Metal Corporation Limited in 1928. At the outbreak of the 1939-45 war he was appointed Controller of Non-ferrous Metals. He became President of the Board of Trade in 1940; Member of the War Cabinet and Minister of State in Cairo in 1941; and Minister of Production, 1942-45. He was Chairman, Associated Electrical Industries Limited from 1945 to 1951, and Director of Alliance Assurance Co. Ltd., 1947-51. Lord Chandos was Secretary of State for the Colonies, 1951-54. He served as Member of Parliament for Aldershot from 1941 to 1954, and was created a Viscount in August, 1954. He was President of the Advertising Association, 1946-49; of the Electrical Research Association, 1955-56; of the British Electrical & Allied Manufacturers' Association Limited, 1955-57; and of the British Electrical Development Association, 1955-58. Lord Chandos was reappointed Chairman of Associated Electrical Industries Limited in 1954, and is currently Chairman of the following A.E.I. companies: British Thomson-Houston Co. Ltd., Metropolitan-Vickers Electrical Co. Ltd., A.E.I.-Hotpoint Limited and Siemens Edison Swan Limited. Other appointments at present held by him include Chairman, A.E.I.-John Thompson Nuclear Energy Co. Ltd.; Director, Alliance Assurance Co. Ltd., and Imperial Chemical Industries Limited; President of the Institute of Directors; Chairman of the Northern Ireland Development Council; Vice-President Engineering & Allied Employers' National Federation, and President, British Electric Power Convention for 1960. Lord Chandos is Chairman of the Chandos Committee on the replacing of the *Queen* liners. He is a Patron of the Civic Trust. As already recorded he is to receive the 1960 Messel Medal of the Society of Chemical Industry next July.



Lord Chandos
Appointed President, Locomotive & Allied Manufacturers' Association

Mr. Gerald Collingwood
Appointed Chairman, Locomotive & Allied Manufacturers' Association

Mr. H. Z. Purchase, of the Chief Mechanical Engineer's Office, New Zealand Government Railways, is at present in United Kingdom, looking into the latest designs and the operation of diesel locomotives and railcars. He will also be spending some time on the Continent.

Mr. R. M. L. Lemon, Chief Assistant to the General Manager, East African Railways & Harbours has been appointed Acting Chief Operating Superintendent. He takes the place of Mr. G. P. G. Mackay who is on leave. The Chief Establishment Officer, Mr. J. H. Collier-Wright, has been appointed Acting Chief Assistant, East African Railways & Harbours.

Mr. Gerald Collingwood, T.D., M.I.Mech.E., M.I.Loco.E., Managing Director, Vulcan Foundry Limited, who, as recorded in our February 26 issue, has been appointed Chairman of the Locomotive & Allied Manufacturers' Association of Great Britain, was educated at Bradfield College. After serving his apprenticeship at Vulcan Foundry Limited, Newton-le-Willows, he had further training with the former London & North Eastern Railway, where he gained running-shed and footplate experience. In 1925 he was appointed Assistant Mechanical Engineer, South Indian Railway, and was for varying periods Acting District Mechanical Engineer and Acting Deputy Chief Mechanical Engineer (Power). Returning home in 1933, Mr. Collingwood was employed by Messrs. Rendel, Palmer & Tritton as Inspecting Engineer in the Leeds, Manchester, and Glasgow Districts, and finally as Resident Inspector at Newcastle-on-Tyne. In 1935 he rejoined Vulcan Foundry Limited as Assistant Works Manager. He was mobilised with the 2/4 Battalion, South Lancashire Regiment (T.A.) in 1939, being later transferred to R.E.M.E. On his demobilisation in September, 1945, with the rank of Colonel, he returned to Vulcan Foundry Limited as Assistant General Manager. He was appointed General Mana-

ger of the company in 1947, and Joint Managing Director the following year. On retirement of the late Mr. F. S. Whalley in December, 1950, Mr. Collingwood became sole Managing Director, thus occupying the position which his father Sir William Collingwood held from 1912 to 1928. He was also Chairman of Robert Stephenson & Hawthorns Limited from 1953 to 1957, and has been Managing Director of that company, with one short break, since 1947. Mr. Collingwood has held various offices within the Locomotive & Allied Manufacturers' Association and its predecessor, the Locomotive Manufacturers' Association including the Chairmanship of the Internal Combustion Group; of the General Purposes Committee; of the Steam Group and of the Finance Committee.

Mr. D. McKenna has been appointed a Director of the Devon General Omnibus & Touring Co. Ltd. Mr. C. W. G. Elliff has resigned from the board.

Mr. Douglas Bruce-Gardner, Mr. Stephen Lloyd and Mr. H. W. A. Waring have been appointed Directors of Guest Keen & Nettlefolds Limited.

Mr. Peter Wrightson, Managing Director of Head Wrightson & Co. Ltd. since 1955, has been appointed Vice-Chairman & Managing Director.

Mr. L. C. Richards, until recently Chief Engineer, Transformer Division, Associated Electrical Industries Limited, Manchester, has become Chief Engineer to Heavy Electricals (India) Limited. He is seconded to this position from A.E.I. Overseas, to whom he has been transferred.

Mr. J. Thorrington and Mr. S. B. Hobbs have been appointed Assistants to the Commercial Officer, York, North Eastern Region, British Railways. Mr. Thorrington will specialise in the bulk-transport of solids and Mr. Hobbs in the bulk-transport of liquids. Reference to these newly created appointments is made elsewhere in this issue.

Mr. Eric A. Robinson, M.C., M.I.Mech.E., Chairman & Joint Managing Director, Superheater Co. Ltd., who, as recorded in our February 12 issue, retired from the position of Joint Managing Director on January 31, remains Chairman of the company. Mr. Robinson was educated at Chel-

Photo: [*Baron Studios*

Mr. E. A. Robinson

Managing Director, Superheater Co. Ltd., from 1935 to 1960

Photo: [*Elliott & Fry*

Mr. L. C. Southcott

Appointed Managing Director, Superheater Co., Ltd.

tenham College and received his practical training in the locomotive works, Crewe, London & North Western Railway. After serving with the Royal Engineers for four years in France, where he was awarded the Military Cross, Mr. Robinson returned to Crewe, becoming Assistant Works Manager. In 1921, he joined his present company for which he has travelled extensively, visiting South Africa, South America, India, Egypt, and the U.S.A. Mr. Robinson was appointed General Manager in July, 1933, a Director in September, 1934, and succeeded Lt.-Colonel H. A. Stenning, as Managing Director, in January, 1935. He became Chairman in April, 1959, following the retirment of Sir Alexander McColl. At present Mr. Robinson is visiting Australia on behalf of the company.

Mr. G. A. Richardson, Chief of Transportation & Public Utilities Section, Dominion Bureau of Statistics, Ottawa, has been appointed General Secretary of the Railway Association of Canada.

We regret to record the death on February 24, at the age of 64, of Mr. J. H. Stone, a Director & General Manager, British Insulated Callender's Cables Limited, Chairman, British Insulated Callender's (Export) Limited, Deputy Chairman British Insulated Callender's Construction Co. Ltd., British Insulated Callender's (Submarine Cables) Limited, and British Copper Refiners Limited.

Mr. L. C. Southcott, B.Sc., A.M.I.Mech. E., who, as recorded in our February 12 issue, has been appointed Managing Director, Superheater Co. Ltd., took up that office on February 1. Before joining the company in 1928 as Design Engineer of the Power Plant Division, Mr. Southcott served with Vickers Limited and Babcock & Wilcox Limited. In June, 1945, he was appointed Chief Engineer, Superheater Co. Ltd. In 1951, he was made a Special Director, becoming a full Director in July, 1954. He was appointed Joint Managing Director of the company in August, 1959.

Mr. E. W. Russell, A.C.I.S., has been appointed Acting Chief Executive Officer & Secretary, Road Haulage Association.

Mr. Dennis Allen, Technical Representative, Winn & Coales Limited, is making a business tour to Ghana, Nigeria and Sierra Leone, and he expects to be away for about two months.

Mr. H. W. Wright has been appointed Head of the Electrical Department, Keith Blackman Limited. The appointment has been made following the recent death of Mr. J. Kenyon, Chief Electrical Engineer of the company.

Mr. E. H. Baker

Appointed Assistant Chief Mechanical & Electrical Engineer, L.M. Region

Mr. F. M. Wright

Appointed Commercial Superintendent (Great Northern), Eastern Region

Mr. R. J. Liddiard

Appointed Public Relations Officer, London, C.N.R.

Mr. Eric H. Baker, M.I.Mech.E., M.Inst.T., M.I.Loco.E., Motive Power Officer, Euston, London Midland Region, British Railways, who, as recorded in our February 19 issue, has been appointed Assistant Chief Mechanical & Electrical Engineer, Derby, began his career, in 1921, as a Premium Apprentice in Doncaster Locomotive Works. During this period he attended a Works Pupils' course at Sheffield University. In 1935, after service at a number of motive power depots, he was made a Technical Assistant to the Locomotive Running Superintendent, Southern Area. In 1937, he became Assistant District Locomotive Superintendent, West Riding, and, in 1942, took up a similar position at Cambridge. In 1944 Mr. Baker was appointed Assistant to the Locomotive Running Superintendent, Eastern Section, Liverpool Street. He became District Locomotive Superintendent at Peterborough in 1945, and at Gorton the following year. In 1948, he was appointed Assistant Divisional Motive Power Superintendent, Derby, London Midland Region. He became Divisional Motive Power Superintendent, Crewe, in 1954, and Motive Power Officer, London Midland Region, Euston, in 1958.

Mr. A. R. E. Roberts has been appointed Industrial Sales Manager, and not Industrial Manager, Fisons Pest Control Limited, as recorded last week.

Mr. T. Pooley, Joint Managing Director, and Mr. E. L. Townsend, Overseas Director, Expandite Limited, leave this country on March 5 for the U.S.A. and Canada.

We regret to record the death on February 27, at the age of 59. of Mr. L. Barker, Technical Officer, Mechanical Engineering Department (Rolling Stock), Crown Agents for Oversea Governments and Administrations.

We regret to record the death, on February 24, of Mr. Charles Cooper, B.Sc.(Eng.), A.F.R.Ae.S., Joint—Editor, with Mr. J. Foster Petree, of *Engineering*, from 1939 to 1953. Mr. Cooper was born on September 22, 1883, and served on the editorial staff of *Engineering* for 60 years, 1897-1957, except for three years in the 1914-18 war, when he was in charge of one of the early wind tunnels.

Mr. F. M. Wright, M.B.E., District Commercial Officer, Traffic Manager's Office, Kings Cross, Eastern Region, British Railways, who, as recorded in our February 5 issue, has been appointed Commerical Superintendent (Great Northern), is 43. Mr. Wright was educated at Rutherford College, Newcastle-on-Tyne. He joined the London & North Eastern Railway in 1933, and served in the Commercial, Operating and Docks Departments, in the North Eastern Area. On the outbreak of the 1939-45 war he joined the Forces and in 1946 was awarded the M.B.E., for his services in connection with the movement of stores from India to Assam and Burma. On his return to railway service, he was appointed a Traffic Apprentice and later became Assistant Yardmaster, Annesley. In 1951 he was appointed Traffic Agent, Consett, and two years later moved to Darlington as Goods Agent and Yardmaster. In 1954 he became Assistant District Commercial Manager, York, and the following year took up a similar position at Lincoln. Two years later he was made Acting District Commercial Manager, Peterborough, being appointed District Commercial Officer, Kings Cross, in 1957.

Mr. R. A. N. Lowther has been appointed Editor of the *Transport Salaried Staff Journal*.

Mr. R. N. Millar, a Director of General Electric Co., Ltd., has been appointed Managing Director of the company's Engineering Group.

Mr. W. C. Bolenius, Executive Vice-President, American Telephone & Telegraph Company, has been elected a Director of the International Nickel Co. (Canada) Ltd.

Mr. J. Mackenzie-Mair has been appointed to the board of Steel, Peech & Tozer Limited. He becomes Director & Commercial Manager. Mr. W. T. Vizer Harmer remains a full-time Director of Steel, Peech & Tozer Limited.

Mr. J. S. Bright, who joined C.A.V. Limited last year from F. Perkins (Canada) Limited, has been appointed Service Manager. Mr. C. W. Billington will continue as Service Manager for the U.K. and will be responsible to Mr. Bright.

Mr. R. J. Liddiard, who, as recorded in our January 22 issue, has been appointed Public Relations Officer, London, Canadian National Railways, will be responsible for Public Relations affairs throughout the United Kingdom, Eire, and the Continent of Europe. Mr. Liddiard was born in 1921. He joined the Canadian National Railways, in London, in 1947, in the Passenger Department. Between 1951 and 1953 he carried out a number of assignments on the Continent, and in 1954 was appointed Passenger Traffic Representative for the London Area. Before taking up his present appointment Mr. Liddiard served in the office of the European General Manager.

Mr. G. Fettes Waddington, Export Manager, Wolf Electric Tools Limited, is making a three-month tour of Australia.

The Institution of Locomotive Engineers

The following names have been entered on, or transferred in, the register of the Institution of Locomotive Engineers:

Associate Members

Mr. J. Beasley, Assistant Chief Engineer, Traction Control Department, Traction Division Associated Electrical Industries Limited.

Mr. A. L. Brooks, Assistant to District Running & Maintenance Officer, Wolverhampton, Western Region British Railways.

Mr. W. H. P. Humphris, Senior Design & Development Engineer, C.A.V. Limited.

Mr. J. M. Seed, Assistant Mechanical Engineer, Transportation Department, Bulawayo, Rhodesia Railways.

Graduates

Mr. E. G. Gates, Junior Assistant Foreman (Trainee), Motive Power Depot, Eastleigh, Southern Region, British Railways.

Mr. P. N. Georgiadou, Commissioning Engineer (Locomotive), English Electric Co. Ltd.

Mr. D. A. Proudler, Draughtsman, Swindon, Western Region, British Railways.

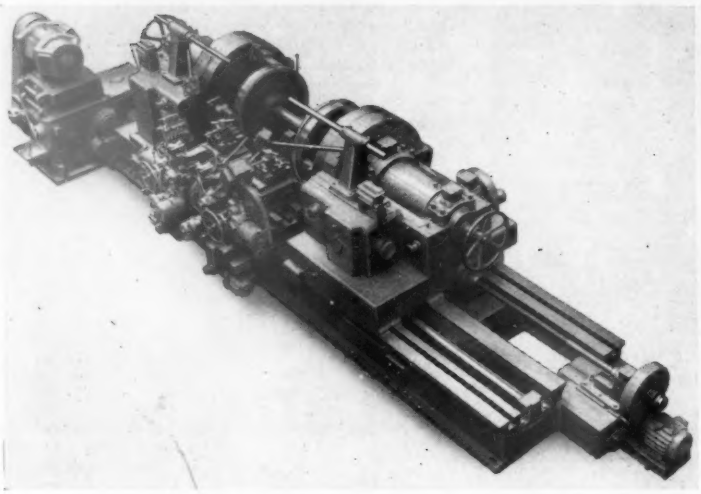
Mr. J. M. Swann, Junior Engineer, Traction Machines Department, General Electric Co. Ltd.

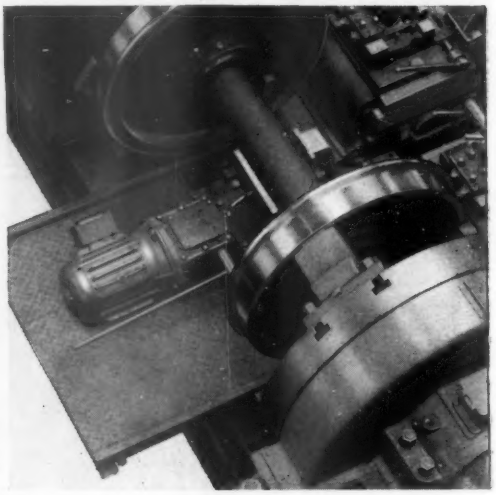
Students

Mr. J. A. Clough, Technician Apprentice, Vulcan Foundry Limited.

Mr. D. E. R. Dartnall, Draughtsman, Metropolitan-Cammell Carriage & Wagon Co. Ltd.

NEW EQUIPMENT AND PROCESSES





Profile Copying Equipment for Wheel Lathes

THE versatility of the standard form of Craven wheel lathe has been considerably extended by the addition of electrically operated profiling equipment. This enables the re-turning of the complete tread and flange contour of a wheel to be performed in a single continuous profiling operation, using a simple standard button-type cemented-carbide cutter. See illustration below, right.

The equipment is controlled by conveniently grouped push buttons. Initial setting adjustments to suit wheel-set variations is effected by the use of a gauge, after which the complete cutting cycle is automatic. Interchangeable templets are used for the various tread and flange forms. An additional tool is incorporated to rough skim the top of the flange while profiling the tread, thus relieving the profiling cutter when a considerable amount of material is to be removed.

A lathe on which this equipment has been installed is of the double-ended type, adapted to re-turn simultaneously mounted wheel-sets up to 41 in. tread diameter. Separate profiling equipment is used for each tyre and four-position tool turrets permit side facing and normal machining operations.

The machine has one fixed and one movable headstock, and the main drive is by a 50-h.p. constant-speed motor and 12-speed gear-box. This gives face plate speeds of 0.8–20 r.p.m., suitable for either high-speed-steel or carbide tooling. Changeover from turret operation to profiling is effected by push-button control and a slow-down feature is incorporated for dealing with hard spots.

The movable headstock is fitted with quick power traverse and electric locking. Hydraulic operation of the side-push wheel drivers ensures a smooth and balanced drive without wheel distortion. Separate variable-speed motors are used for the longitudinal and transverse feed motions for profiling and for normal feed. Variometer control of the motors gives a stepless range of feeds from 0.079 to 1.617 in. per min. During profiling, rotation of the two motors is co-ordinated by a tracer head and templet to produce the required contour. These are visible in the centre of the lower left-hand illustration. The rate of feed is controlled either automatically or manually to suit the contour.

Rapid approach of the tool is followed in automatic sequence by profile cutting, quick withdrawal and stopping. A separate quick-transverse motor provides for initial transverse adjustment of each complete slide rest upon its saddle base, to suit different wheel diameters. Correct functioning of the machine throughout the various operations is shown by indicator lights on the control panel.

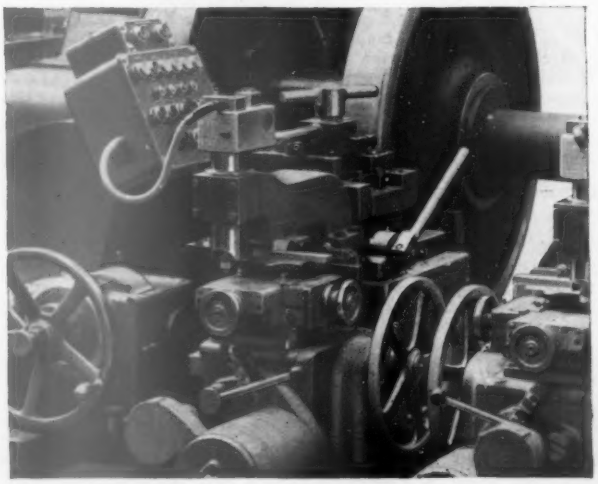
A wheel lift is fitted to facilitate machine loading. The wheel set is run into the machine on rails and lifted by an electrically-driven screw-jack to the correct centre height. The lift is free to move longitudinally in the bed, thus allowing the jack to support the wheel set throughout the loading and gripping operation. It is shown in the upper right-hand illustration.

Full details of these machines, several of which have recently been supplied to British Railways, may be obtained from the manufacturer, Craven Bros. (Manchester) Ltd., Reddish, Stockport.

Track Circuit Fault Locator

AN instrument to enable a lineman quickly to locate short-circuit and earth faults with track circuits, particularly in rails laid on concrete sleepers, has been designed by the Signal Engineer's Department of the Eastern Region of British Railways.

The equipment provides a lightweight sensitive and accurate means of locating faults such as a short circuit across the



track, a faulty insulated joint, or disconnection in the track cables.

The test set is made up of two parts, one containing a transistor-type oscillator giving an output of two tones, alternately high and low notes. This oscillator is connected across one end of the track circuit under test. It is not necessary to disconnect the track circuit equipment. The other part is a pocket-size transistor-type detector fitted with an on/off switch and volume control. It can be held in the hand at waist height and the section traversed at walking pace in the 4-ft.-way. Any background noises caused by induction from a.c. supplies, and so on, have no effect on the working of the test set.

An increase or decrease of volume of one or both tones indicates a leakage or interruption of the track circuit, the precise point of which can be determined by passing the detector in a vertical position about one in. above the rail. The instrument can also be used for tracing track cables in a cable route.

Portable Oscilloscope

THE Solartron portable double-beam oscilloscope, type CD1014, is a true double-beam instrument using a double-gun cathode ray tube.

Weighing only 22 lb., it provides unusually high performance for its size and is ideal for general development, first-line service, and educational uses.

Bandwidth is from d.c to 5 Mc per sec. (-3 db.), at a maximum sensitivity of 100 mV. per cm. Calibrated attenuators enable the sensitivity to be reduced to 100V. per cm.

The instrument is cased in a completely new and attractive style, a departure from the customary box-like appearance.

Further details can be obtained from the manufacturer, the Solartron Electric Group Limited, Thames Ditton, Surrey.

Dust-free Rooms

A Cimex system of thoroughly cleaning floors and maintaining them free of dust and harmful germs is intended for laboratories, hospitals, hotels, business houses, and wherever clean air is desired in buildings, such as for diesel engine fuel injection equipment maintenance.

One of the basic principles is to prevent the dust from rising into the air at any time. The second is to use a floor polish which gives a hard, wearable, homogeneous surface to prevent dust and dirt from penetrating or settling.

When the floor has passed certain tests, HAR2 polish is applied which has no pores so that dust and dirt cannot penetrate. The application should be liberal using the Cimex-Fraser Tuson Waxicator polish applicator fitted with a lambswool slipper to ensure a smooth and even distribution. According to the type of floor surface two coats may be necessary. The floor is then left for 6–12 hr. to ensure that the polish settles, before buffing.

Daily maintenance to retain a clean non-slip surface consists of wiping with a damp clean cloth, followed by buffing. It is considered essential that a bucket containing a detergent solution should be available to ensure that the cloth is kept clean. Dusting of furniture should also be done with a clean slightly-damp duster.

Depending on the volume of traffic, buffing with polishing pads instead of brushes fitted to the Cimex Vulture polisher should be performed at least every other day. Polish need only be applied at infrequent intervals—never more often than bi-monthly even at doorways. It is recommended that the floor should be scrubbed once a year.

A specially designed mat should be placed at entrances to all parts of a building, including lifts. It is made of rubber and has interstices standing up so that they will take off grit and dirt adhering to the shoes. The mat deposits the dirt collected underneath, where it can be vacuum swept with ease thus centralising the main dirt/dust collection.

Further details of the system and the equipment used may be obtained from Cimex-Fraser Tuson Limited, Cray Avenue, Orpington, Kent.

Spur Cable Racking System

THE Spur cable racking system is extremely flexible and claimed to be economic in installation. Based on the Spur adjustable shelving system, it uses modified Spur components and a number of special fitments to enable the heaviest types of industrial and power cabling to be carried with safety.

Basically, the racking consists of regularly-slotted, wall-mounted uprights of mild steel channel into which fit cantilever brackets ranging from 5 in. to 18½ in. in size. Two slotted channels bolted together and fixed at floor and ceiling with heavy-duty sockets, form an " island " site.

A simple bolting system on the brackets fixes standard cable trays, or holds a top-plate to carry standard cable clamps or cleats. Height of the bracket can be easily adjusted.

The safe load for each bracket ranges from 280 lb. for the 5-in. to 160 lb. for the 18½-in. Considerably greater loads can be carried if a supporting strut is incorporated.

Detailed installation drawings are unnecessary. Where new buildings are concerned, the system simplifies *in situ* concreting work, as no inserts are required.

Further details can be obtained from the manufacturer, Savage & Parsons Limited, Watford, Herts.

Simplified Coal Conveying

REORGANISATION of the fuel system at the Maltings of Charrington & Co. Ltd. at Walmer, Kent, has saved time and labour. The old open fires were taken out and Suxe solid fuel burners installed, which burn the same coal but as " grains." These " grains " are delivered from Cwmgrach, Wales, to Walmer Railway Station in 10-ton trucks.

An 11-ft. petrol engine-driven Mayrath conveyor transfers the anthracite from railway truck to 5-ton lorry. The inlet of the conveyor is placed among the coal and the " grains " are carried by Archimedes screw to the lorry, filling it in about 30 min.

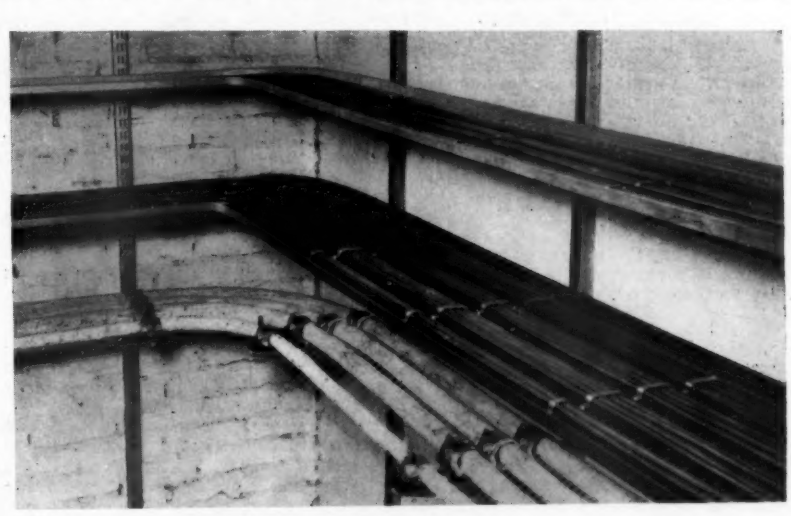
The conveyor subsequently unloads the coal at the Maltings through a chute into the bunker. Here, it is picked up by an electrically driven, permanently installed 21-ft conveyor working on the same principle as the 11-ft. conveyor. The coal is carried half-way along the bunker where it is picked up by another 21-ft. permanently installed conveyor, which takes it right to the main store.

The conveyors replace two men and have effected a saving in time of 50 per cent.

Further details of the conveyors can be obtained from Gordon Felber & Co. Ltd., Spirella House, Oxford Circus, London, W.1.

Fan-Cooled Electric Motors

A NEW range of totally-enclosed fan-cooled motors, complying with British Standard Draft Specification A (ELE) 1629, are available which are dimensionally interchangeable with ventilated motors designed to B.S.2960.



These machines comply with B.S.2613 for Class " E " insulation and give a similar h.p. output. The motors are smaller and lighter in weight than the corresponding totally-enclosed fan-cooled motor to B.S.2083 and are lower in price.

The foot-mounted range has been developed up to 7½ h.p. at 1,500 r.p.m. but it is expected that machines will be available up to 40 h.p.

Other derivatives such as flanged, foot-and-flanged, and totally-enclosed non-ventilated types will follow.

With the exception of the smallest frame the stator housing is ribbed on the outside to increase surface area and effect rapid heat dissipation. The construction also gives considerable strength to the shell design. The machines are suitable for use in dirty or fluffy atmospheres.

A further range of totally-enclosed fan-cooled motors will become available to C.E.M.A./N.E.M.A. North American dimensions based on these frame sizes.

Further information regarding these motors can be obtained from Higgs Motors Limited, Witton, Birmingham, 6.

English Electric Group Increases Turnover

Lord Nelson of Stafford on keener competition and falling margins

The annual general meeting of the English Electric Co. Ltd. and its major subsidiaries in the United Kingdom will be held on March 17 in London.

In the course of his statement circulated to stockholders, the Chairman, Lord Nelson of Stafford, said:

English Electric Company

Once again I am able to report a substantial increase in our turnover. The volume of the Group's business has shown a steady growth over the past 20 years and has doubled since 1953. This reflects great credit on the vision of our research and development staff, on the efforts of those who work in our great factories and the devotion of the members of our commercial organisation at home and overseas.

Although our traditional business continues to expand, competition is fierce, prices are keen, and our margins are even narrower than hitherto. We have succeeded in increasing our earnings by securing a larger volume of traditional business at a lower profit rate.

Improvement in World Trade

The last 18 months have shown signs of a revival of activity from the world-wide recession of some two years ago and there was also a slight but encouraging rise in world trade in electrical engineering goods in 1959. The economic indicators both in this country and overseas seem to point generally to a further rise in activity in 1960. Furthermore the long-term trends show that the world consumption of electrical power is growing at the rate of seven or eight per cent per annum and I confidently expect that progress to continue and to give rise to an increased demand for our products in the years ahead.

Nevertheless I must emphasise that the expansion of total demand so far has been largely on durable consumer goods; in fact in heavy electrical products there is acute competition and with the resurgence of manufacturing activity in Western Europe and Japan there has emerged a state of overcapacity in relation to world demand.

Export orders are secured only at prices so disappointingly low as to fail to provide adequate margins which are essential to cover large scale expenditure on research and development.

Our volume of business continues to rise and during 1959 we took orders to a value of £14 million higher than we did in 1958 but prices are much keener and profit margins are much lower than is healthy for this type of business.

Need for Stable Conditions

In the United Kingdom it is essential for the Government of the day to create, so far as is within its power, a stable monetary position within which it is the task of industry to secure sufficient business to provide stable employment for its employees. We should congratulate H.M. Government on its success in providing stable conditions and look forward to the continuation of the policies that have brought this about.

The Chancellor of the Exchequer has referred in several speeches to the need to reduce prices in certain sectors of the economy in order to maintain the overall price stability already achieved. I agree with this analysis and if there are reductions in certain of the materials we purchase, if wage and salary claims are restrained and related to economic facts, then we shall be free from the upward pressure on costs which we felt so severely during the years of inflation. It is for each of us to pursue by every means in our power the reduction of costs—whether by improvements in design or manufacturing technique or by economies in overhead expenditure.

Review of Group Activities

In reviewing the Group's activities, Lord Nelson of Stafford said:

We are playing a major role in the modernisation of the British railway system both in the supply of diesel and electric locomotives and of other traction equipment. We shall undoubtedly continue to derive a considerable volume of business over the next three or four years from the British Railways programme and to this we must devote our major effort.

Looking further ahead, as rehabilitation of British Railways proceeds we shall have to rely more and more upon orders from the export market. In parallel, therefore, with our responsibility to British Railways we must ensure that we obtain now an important part of the business offering overseas.

Results of the Napier Company for the past year are disappointing, inasmuch as a long and satisfactory profit record has been interrupted by a loss. Measures have been taken to rectify the position of Napier's and a substantial improvement is expected during 1960.

The technical merits of our Eland engines have been demonstrated by the considerable success with which we have broken into the American market. The Gazelle engine is being installed in several helicopters manufactured in this country. The Deltic diesel has become an engine of considerable significance in railway modernisation in addition to its marine and stationary applications. There also continues to be a satisfactory volume of business for Napier turbo-blowers and the Napier Spraymat De-icing system.

Vulcan Foundry Group

The Group trading results again show a marked improvement, due partly to an increase in turnover and partly to the increase in efficiency arising from our continuing policy of progressive modernisation.

The Vulcan Foundry Limited

Results show marked improvement. Lord Nelson on benefits from modernisation policy

The 97th annual general meeting of the Vulcan Foundry Limited will be held on March 17 in London.

The following is an extract from the review by the Chairman, the Rt. Hon. Lord Nelson of Stafford, LL.D., F.C.G.I., D.I.C., M.I.Mech.E., M.I.E.E.:—

I am pleased to say that the Group trading results again show a marked improvement. The profit on trading account is £435,784, after charging depreciation of £160,068, compared with a profit of £125,780 in the previous year. After tax, there is a net profit of £175,784, compared with a net profit of £50,780 in the previous year.

The directors again recommend a dividend on the ordinary stock of 5 per cent, less income tax.

These improved results are due partly to an increase in turnover and partly to the increase in efficiency arising from our continuing policy of progressive modernisation of the workshops.

Newcastle Works

I must refer first of all to the decision which has had to be made, with great regret, to close the Forth Banks, Newcastle, Works of Robert Stephenson & Hawthorns Limited, early in the present year. A very large sum of money has been spent in the past three or four years on the extension and modernisation of Stephensons' Darlington Works, in order to adapt them for the manufacture of diesel-electric locomotives, but the situation at Newcastle was unfortunately quite different. We were faced a with complete falling-off in the demand for steam locomotives, including the smaller industrial types which formed the major part of the production at Forth Banks. Every effort was made to keep the shops going with other work, and very careful consideration was given to the possibility of modernising the works, but their age, nature and condition would have involved an expenditure which clearly could not be justified. The employees were notified of the decision as soon as it was made six months ago, and we have done everything within our power to offer them alternative employment.

The results of out investment in rehabilitation and re-equipment of the Vulcan and Darlington Workshops are now to be clearly seen in more efficient and economical production, which is reflected in the trading results. Two other features deserve mention; the extension and modernisation of the Design Offices at Newton-le-Willows, and an extension and reorganisation of the apprentice training facilities, with the objective of ensuring an adequate supply of skilled labour in the future, and of helping to deal with the problem of the school-leaving 'bulge.'

British Railways

Once again the bulk of our locomotive output, both at Vulcan and Darlington, has been for British Railways. The English Electric Group enjoys the unique distinction of having received orders from the British Transport Commission for each of the five types of diesel-electric locomotive in the Railways' Modernisation Scheme, as well as a.c. electric locomotives for the London Midland Region main-line electrification project.

During 1959, we supplied a large number of Type "1" (1,000 h.p.) and Type "4" (2,000 h.p.) locomotives to the London Midland and Eastern Regions of British Railways, while 10 Type "2" locomotives of 1,100 h.p., powered by a nine-cylinder Napier "Deltic" engine, were built for the Eastern Region. Our current programme includes further Type "1" and Type "4" locomotives, together with orders for 1,750-h.p. Type "3" locomotives, the electric locomotives mentioned above, and 22 "Deltic" locomotives of 3,300 h.p., similar to the prototype English Electric "Deltic" which has already run nearly 400,000 miles on British Railways. We have been greatly encouraged by receiving further substantial repeat orders from the British Transport Commission. The co-operation and help given to us by the Commission and its staff at all levels has been invaluable in the execution of the orders which they have entrusted to the English Electric Group.

Before the British Railways modernisation

scheme was launched a few years ago, our main - line locomotive production was directed almost wholly to export. The major proportion of our output is now for the home railways, but out interest in overseas markets is of course still undiminished, and orders completed during 1959 or on our production programmes include English Electric locomotives for Argentina, East Africa, Ghana, India, South Africa, and the Sudan.

We are under no illusions, however, about the difficulties of securing overseas orders in the face of world-wide competition, and it is vital that we should be able to match out competitors on price, on delivery, and on a third factor which is becoming increasingly significant—financial terms. This question will become of even greater importance to our Traction interests when the demand for locomotives for British Railways falls below its present level, and we have to depend to a greater extent on export orders to keep our capacity fully engaged. It is vitally important that when this stage is reached we should still be able to rely upon a steady flow of home orders, which is so essential if the Locomotive Industry is to play its part in securing export orders to the benefit of the country's economy as a whole.

Prospects

The orders on our books are sufficient to occupy the Workshops' capacity fully during and beyond the present year, and if no unforeseen complications arise, there is every indication that the results for 1960 will show a further improvement over those achieved in 1959.

Bridge Renewal at Farringdon, L.T.E.

Replacement of Ray Street Grid-Iron by a reinforced concrete raft

London Transport engineers have started work on the replacement by a reinforced concrete raft of the Grid-Iron bridge carrying the electrified Metropolitan and Circle Line tracks over the non-electrified City Widened Lines at Ray Street, about 300 yd. west of Farringdon Station.

The original Grid-Iron was a wrought iron bridge built in 1866-67. It served a secondary purpose as a strut between the high retaining walls of the cutting at this point. The wrought-iron girders deteriorated, probably largely from the effects of smoke, and were replaced by the present girders in 1892, but no provision was made at that time for the strutting of the retaining walls.

Deterioration Under Foundations

Shortly after the last war, when the replacement of the iron work was again under consideration, it was noticed that there were slight signs of movement of the retaining walls and abutments. This movement was slow and gave no cause for alarm until, in the spring of 1958, the rate of movement increased and had to be arrested by building concrete struts between the bases of the walls under the non-electrified tracks and by taking other minor measures. It was found that the clay under the foundations of the walls had deteriorated in the course of time and that a permanent remedy would have to be devised.

The walls are to be stabilised by building a mass concrete invert, 180-ft. long and 28-ft. 6-in. wide, between the walls and beneath the lower pair of tracks. This will strut the walls at the bottom, protect the ground from further softening, and also carry the drainage of the low point where the Widened Lines dip beneath the electrified tracks without allowing it to cause the ground to soften.

The 11 girders of the Grid-Iron are to be replaced by a continuous reinforced concrete raft, 108-ft. in length, to provide a new bridge deck. The raft will also act as a continuous strut between the two retaining walls.

Erection of Concrete Rafts

Working at weekends, the engineers will build sections of the raft between the existing girders. The necessary shuttering for each raft section will be erected during one Sunday possession and the reinforcing steel will be assembled in its final position. During the following Sunday possession, the shuttering will be propped from below and concrete will be placed in this section of the raft by pumping. Simultaneously, shuttering and reinforcement will be positioned for another section of the raft. As the girders of the Grid-Iron are unable to carry the weight of the raft sections as well as that of the passing trains, it is essential that each section be constructed and set to self-supporting strength within the period which the train service can be suspended at weekends. For this reason, concrete of a very high early strength is being used. It will be delivered, pre-mixed, as required to the nearest practicable point to the site to which road access is available and a concrete pump will force it through a pipe-line for the last 200-300 ft. to the working site. Before the railway tracks are released for traffic again after weekend work, the raft section will be self-supporting and the props supporting the shuttering will have been removed.

Removal of Girders

When the 10 sections have been built in this way, the original girders will be removed and the weight of the track and trains will be carried by the raft sections. The gaps left by the removal of the girders will then be built up in the same way as the rest of the raft and the track will be ballasted as though carried on a normal formation.

The site is difficult and congested, and very near to pairs of intensively-used railway tracks, so that only a small part of the work can be done while trains are running, and complete track possession must be given to the engineers while the raft sections are built. For this reason the Circle and Metropolitan Line service will be suspended on Sundays from March 20 to July 17 from start of traffic until 6.15 p.m. in most cases and for the whole day on June 26 and July 3, except on Easter and Whit Sundays when services will be normal.

The work is being carried out by London Transport Engineers, under the direction of Mr. C. E. Dunton, Chief Civil Engineer, London Transport Executive. The cost is some £50,000.

Ray Street Grid-Iron carrying L.T.E. Metropolitan and Circle Line tracks over the Widened Lines used by British Railways suburban and freight trains

COAL TRAFFIC IN THE N.E. REGION.—During the weeks ended February 6 and 13, the tonnages of railborne coal traffic originating in the North Eastern Region of British Railways were 968,000 and 952,000 respectively, figures which have been exceeded only twice during the past seven years, in the pre-Christmas peak weeks of 1953 and 1956.

THE MODEL RAILWAY CLUB NEW PREMISES.—This month the Model Railway Club, which was founded in 1910, are opening its new premises at Keen House, Calshot Street, Pentonville Road, Kings Cross, N.1, and all forthcoming meetings will be held there. With the generous help of members and friends of the Club they have been able to build their own premises specially designed to cater for model railway activities. The accommodation includes two large rooms, one for lectures and one for the permanent erection of test tracks, a library which is also suitable for small meetings, a committee room and a store.

Institute of Transport Congress in London

Provisional programme of meetings and excursions

The final programme of the Institute of Transport Congress, 1960, to be held in London on April 26-29, will be issued early in April. The provisional programme is given below.

March 15 is the closing date for receipt at the Institute of Transport, 80, Portland Place, W.1, of applications to attend the congress.

Opening, and Discussions

April 27, 9.45 a.m.:

Official opening of congress by the Minister of Transport, Mr. Ernest Marples, followed by paper "Some thoughts on the future of inland transport," by Sir Brian Robertson, a Vice-President, Institute of Transport, and Chairman of the British Transport Commission.

April 28, 10 a.m.:

Papers: "British shipping—a national service or a commercial enterprise?" by Sir Donald Anderson, Past President, Chamber of Shipping of the United Kingdom and "British transport aeronautics—looking ahead," by Mr. Peter G. Masefield, Past President, Institute of Transport, and President, Royal Aeronautical Society.

Visits and Excursions

April 26, 6–7.30 p.m.:

(A) Films of transport scenes in early part of the century, and documentary films, in the Film Theatre of the British Council; introduction by Mr. Edgar Anstey, Chief Officer (Films), B.T.C.

April 27:

Alternative morning visits for ladies only:—

(B) B.T.C. collection of historical relics at Clapham

(C) British Waterways canal cruise between "Little Venice" and London Zoo

(D) Inspection of Harrods Limited store

(E) Thos. Cook & Son Limited and Tilling Transport (B.T.C.) Limited: conducted motor coach tour of City and West End

Alternative afternoon visits:—

(F) Crow Carrying Co. Ltd. (specialists in bulk liquids transport). Rebuilt depot and offices at Barking including modern vehicle maintenance workshops. Inspection *en route* of engineering works of reconstruction of Barking Station (Eastern Region) and new flyovers

(G) British Railways, L.M. Region, carriage cleaning depot at Willesden

(H) B.T.C. collection of historical relics at Clapham

(I) London Airport and B.E.A. engineering base

(J) L.T.E. bus works at Aldenham

(K) L.T.E. food production centre at Croydon (ladies only)

(L) Port of London Authority cruise from Tower Pier and through Royal Docks

(M) Redifon Limited flight simulator factory at Crawley

(N) Royal Mews, Buckingham Palace (ladies only)

(O) S.P.D. Limited distribution depot at Salfords

April 28:

Alternative morning visits for ladies only:—

(P) B.T.C. collection of historical relics

(Q) British Waterways canal cruise to London Zoo

(R) Inspection of Harrods Limited store

(S) Thos. Cook & Son Limited and Tilling Transport (B.T.C.) Limited: conducted motor coach tour of City and West End

Alternative afternoon visits:—

(T) Associated-Rediffusion Limited television studios at Wembley

(U) British Railways, Eastern Region: new electric car sheds at Ilford, with view of new Temple Mills Marshalling Yard en route; luncheon at Liverpool Street Station

(V) British Railways, Western Region: signal works and new diesel depots at Reading with visit for ladies to factory of Huntley & Palmer Limited; luncheon *en route*

(W) British Road Services depots at Brentford (haulage), Acton (parcels) and City Road Offices (teleprinter terminal)

(X) B.T.C.: repository of minute books, maps, timetables and other archives at 66, Porchester Road, W.1.

(Y) British Waterways: new lock at Brentford, Brentford depot (transhipment and storage), Bulls Bridge repair yard, and Docks and Waterways Research Station

(Z) George Ewer & Co. Ltd. (Grey-Green Coaches) chart room, operational control room and general head depot at Stamford Hill

(AA) L.T.E. Northern Line signalling installation at Leicester Square

(BB) Thos. Cook & Son Ltd. and Tilling Transport (B.T.C.) Limited: conducted motor coach tour to Hampton Court (ladies only)

April 29:

Alternative all-day visits:—

(CC) B.P. Refinery (Kent) Limited refinery at Isle of Grain

(DD) British Railways, Southern Region: North Kent Electrification with visits to frame and relay room at Sittingbourne signal box and the field station at Swale (members), Canterbury Cathedral (ladies), Margate (luncheon)

(EE) Ford Motor Co. Ltd. works at Dagenham (men only)

(FF) Unilever Limited: Stork Margarine Works at Purfleet (mechanical handling methods are a feature)

Evening Functions

April 26 : Informal assembly with music and dancing, 9 to 10.30 p.m., at the Waldorf Hotel. Lounge suits

April 27: Reception, 8.30 p.m., at Guildhall. Evening dress and decorations.

April 28: Annual dinner of Institute (followed by dancing), 7.15 for 8 p.m., at the Dorchester. Evening dress and decorations.

Approach cutting to tunnel, showing north portal in foreground

Branch Line to Bevercotes Colliery

British Railways, Eastern Region, has announced that a new branch line, linking Bevercotes Colliery with the main Chesterfield to Lincoln line near Boughton Station, will be brought into use in June this year. This project has been undertaken because British Railways has been given the task of transporting the bulk of the coal produced at the colliery, the output of which is expected to be 1,000,000 tons a year by 1963.

The civil engineering work is a particular feature of the 4¼ miles of new track, all but 56 ch. of which is single line. About half the line will be in cutting and half on embankment.

Approximately 370,000 cu. yd. of filling material were required for the embankments, but two-thirds of this amount has been obtained from those parts of the line which pass through cuttings. The balance has come from the Ollerton spur or from the borrow pit which is located alongside the colliery pit.

Tunnel to Preserve Agricultural Land

Eleven bridges have had to be constructed, as well as a 350-yd. tunnel, which was necessary to preserve agricultural land. Two of the four underbridges carry the new line over the rivers Meden and Maun and two pass over public roads. Of the seven new overbridges, one is for a public road, the remainder being occupation roads. Two of the underbridges are of welded steel construction and all the other bridge work is in pre-stressed concrete beams with *in situ* concrete filling.

Another aspect of the project has been the excavation work undertaken at the point where the double-line portion of the branch railway curves across the old Ollerton Colliery slurry pond. The bank has been raised to 14 ft. above the existing pond level. Before this could be done it was necessary to excavate the slurry to a depth of some 30 ft.

and backfill with materials from a disused spur at Ollerton.

The whole of the work has been carried out to the design of Mr. A. K. Terris, Chief Civil Engineer, British Railways, Eastern Region. The main contractor for the work was T. Fletcher & Co. Ltd. of Mansfield, Notts.

Parliamentary Notes

Questions on Nationalised Industries

Mr. R. A. Butler, Home Secretary, as Leader of the House of Commons, made the following statement on February 25:

Hon. Members have recently enquired about the scope for questions on the nationalised industries.

The Government has given this matter most careful consideraion, but has come to the conclusion that it must adhere to the view that Ministers can answer questions only on matters for which they have a recognised responsibility. Otherwise they would inevitably find themselves encroaching upon the managerial functions entrusted to the nationalised boards.

Ministers would, of course, answer for the matters which the industries are required by statute to lay before them, and for appointments, finance and matters on which they themselves have statutory powers or duties. In addition they may from time to time be concerned with other questions of broad policy affecting the industries. There is no hard-and-fast formula by which these matters could be identified and opened to questions in the House, but provided questions on the paper relate to Ministers' responsibilities for matters of general policy, they will consider sympathetically the extent to which they can properly reply.

Mr. H. Gaitskell, Leader of the Opposition, asked whether Ministers were also responsible for obtaining information, and, if Members wished to obtain information on particular points which were within the power of the Minister to obtain, was there any reason why he should not give that information. Secondly, there was some concern that it was not only a matter of the questions being refused at the Table. He wondered whether the Leader of the House would care to comment on that, or the Speaker would care to consider the matter. It was of course a greater difficulty for Members if their questions were refused altogether by the Table than if it was merely the decision of the Minister that he could not answer them.

Acceptance of Questions

Mr. Butler replied that Ministers wished to supply as much information as possible if there was no encroachment on the managerial functions of nationalised boards, and the question fell generally within the broad categories mentioned. Under the rules of the House, the responsibility for accepting questions came under the Speaker's jurisdiction. If they could see how this worked out, the task of interpretation being left to the Speaker and the Officers of the House, they might be able to see whether the spirit in which his statement had been made was being implemented.

Mr. Gaitskell: There is a difference between Ministers saying that they will not answer a question which, frankly, gives the House an opportunity of pursuing it, and sheer inability to put questions on the Order Paper.

The Speaker stated that what the Table did was governed by the rules of the House in accepting or refusing questions. The principle was roughly as follows: Refusal by a Minister to answer a question counted as an answer, so that the question could not be asked again. By extension of that doctrine, a refusal by a Minister to answer questions in a given category counted as an answer to all questions in that category, so that Members could not table questions in that category. If Ministers were to say at any one time that they would now be able to answer questions in a category in which they had not been willing to answer them before, and would do so publicly (not by means of a private communication to the Table—then that would change the application of the rules of the House in that instance. He did not know how to change that, and it would be quite unworkable if Ministers were to give an *ad hoc* assent relating to a particular question in a hitherto refusable category. He could not help the House further than that. The Table must have some consistent principle by which it operated.

No Interference with Management

Mr. E. Shinwell (Easington—Lab.) pointed out that he had had something to do with inserting certain words into two nationalisation Acts. The words which governed the responsibility of Ministers were "general policy," which had never been defined. At the time those Acts were introduced, the then Labour Government had been anxious not to allow Members to interfere with day-to-day administration. Since then a variety of issues had emerged on which Members desired information. It was invidious that they should be compelled to write to the nationalised boards for information, and often receive no answers. What was meant by "general policy?"

Mr. Butler said that he found considerable opposition on both sides of the House to the idea of interfering with nationalised industries. He would see whether, at a later date, they could carry the matter further.

Staff and Labour Matters

More Pay for B.T.C. Dock Men

About 18,000 crane-drivers, checkers, porters, clerical staff, labourers, and other staff employed by the Docks Division of the British Transport Commission are to get a 5 per cent interim pay increase backdated to January 11. This was agreed on February 25 after a meeting between the National Union of Railwaymen, the Transport Salaried Staffs' Association, and the Docks Division of the B.T.C.

Railway Pay Committee of Inquiry

The report of the Guillebaud Committee set up by agreement between the British Transport Commission and the three railway trade unions to inquire into the relativity of railway pay with that of staff in other nationalised industries, public services, and appropriate private undertakings, was published today. An account of the committee's findings will be published next week.

Claim for a Shorter Railway Working Week

At a meeting of the Railway Staff Joint Council on March 1, the three railway trade unions submitted claims for the introduction of a shorter working week for railway salaried and conciliation staff.

For conciliation staff, a working week of 40 hr. in five days of an 8-hr. day without any reduction in rates of pay and exclusive of Sunday, is the basis of the unions' claims.

In the case of salaried staff, the unions are seeking a 38-hr. standard week to be worked in five days.

After hearing the unions' submissions, the representatives of the B.T.C. undertook to give a considered reply as soon as possible.

Contracts and Tenders

Electrification of Severn Tunnel pumping station

A contract to the value of some £100,000 has been placed by British Railways, Western Region, with the Brush Electrical Engineering Co. Ltd., a member of the Hawker Siddeley Group, for the electrification of the Severn Tunnel Pumping Station at Sudbrook, near Chepstow, Monmouthshire. The equipment to be supplied includes a high-tension substation containing a 23-panel, 3.3-kV., 75-mVA. type "VBA" switchboard incorporating solenoid operated circuit breakers. A 17-panel control board will provide overall operational supervision of the pumps, fans, auxiliary transformers, and alternators. The contract also contains a requirement for a special lighting and heating system and a comprehensive cabling arrangement. Although power for this installation will normally be taken from the public supply, two diesel generating sets will also be installed as standby plant for emergency uses.

The Mitchell Construction Co. Ltd., Peterborough, has been awarded a contract by the British Transport Commission in connection with the construction of a new marshalling yard at Lamesley in the North Eastern Region of British Railways. The contract embodies the construction of piers and the superstructure for a new road over the rail bridge at Lamesley and the formation of embankments and approaches. The Consulting Engineer is Mr. A. Dean, Chief Civil Engineer, North Eastern Region, British Railways.

British Railways, Eastern Region, has placed the following contracts:

Associated Electrical Industries Limited: supply and installation of private automatic branch telephone exchanges at East Ham, Southend East, and Tilbury Riverside, and private automatic exchanges at Seven Sisters and Broxbourne

General Electric Co. Ltd.: supply and installation of two six-channel voice frequency telegraph systems and associated test apparatus in the Liverpool Street, Seven Sisters, and Bishops Stortford areas

Pitchers Limited: provision of feeder station and frequency convertor house at Gas Factory Junction, near Bow Goods Depot

Samuel Butler & Co. Ltd.: repairs to underline bridge No. 1358 between Cambridge Heath and London Fields, Ellingfort Road underline bridge No. 1362 between London Fields and Hackney Downs, and underline bridge No. 1374 at Hackney Downs Station

Clugston Cawood Limited: demolition of engine shed offices, cattle pens and sundry other buildings and plant at Spital Motive Power Depot, Peterborough.

British Railways, London Midland Region, has placed the following contracts:

The Butterley Co. Ltd.: supply, fabrication, and delivery of steelwork for bridges Nos. 6 and 43 on the Acton and Bacup Branches respectively; supply, fabrication, delivery, and erection of steelwork for bridges Nos. 1/83 and 1/85 on the Hampstead Junction Line; and supply, fabrication, and delivery of steelwork for the superstructure of new bridge over canal at the new freight terminal, Stoke-on-Trent

Leonard Fairclough Limited: new freight terminal at Watford Junction; construction of new bridge on Market Drayton Branch near bridge No. 27, over the Bir-

mingham–Preston Motorway, for the Ministry of Transport; reconstruction of bridge No. 94 between Speke Junction and Edge Hill, Liverpool, to accommodate the widening of Smithdown Road for the Corporation of Liverpool; and reconstruction of booking-hall sub-structure at Ditton Junction and also reconstruction and widening of adjoining bridge No. 65

Edward Wood & Sons Ltd.: extension to electric shop at Locomotive Works, Derby.

British Railways, North Eastern Region, has placed the following contracts:

John Barnsley & Sons Ltd.: supply and erection of two 20-ton overhead travelling cranes at Walker Gate Works

Metropolitan-Vickers-G.R.S. Limited: supply and installation of wagon retarders, power points, and signalling in Dringhouses Up Yard

Intermit Limited: supply and erection of a filter cleaner and oiler unit for York Motive Power Depot

Ludwell & Co. Ltd.: extension to a workshop at the Civil Engineer's Leeman Road Depot, York

F. & J. Watkinson: transfer of the existing signalbox from Skellow to Adwick Junction and renewal of the lever frame

W. Briggs & Son: erection of a new signal relay room at Berwick

Kingsbury Concrete Co. Ltd.: supply of pre-cast concrete units for a bridge at Gateshead

Tarslag Limited: supply of pre-cast columns and foundations for footbridges at Newport Marshalling Yard

Hunslet Engine Co. Ltd.: supply of a prototype rail broaching machine for the Chief Civil Engineer's Department at York

Eddon & King Limited: improvements to Railway Cottages, 1 to 6 Croft Junction, Darlington.

The Export Services Branch, Board of Trade, has received calls for tenders as follow :—

From India :

1 diesel shunting locomotive, 5 ft. 6 in. gauge, required by Amar Kantak Thermal Power Station of the Madya Predesh State Electricity Board.

The issuing authority is the Government of India, India Supply Mission, 2536, Massachusetts Avenue, N.W., Washington 8, D.C., U.S.A., to whom bids should be sent, quoting tender No. SE.152. Copies of specifications and other documents relating to this call for tender under D.L.F. aid can be obtained from the India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, price $2 per set. The closing date is April 14, 1960. Photo-copies of tender documents are not available at the Board of Trade. The Board of Trade reference is ESB/4596/60/ICA.

1 portable ultrasonic flaw detector

1 thickness meter precision larger gauge type 2.090 or similar with 3/NC accessories.

The issuing authority and address to which bids should be sent is the Director-General of Supplies & Disposals, Shahjahan Road, New Delhi. The tender No. is WP7/8212-K/1. The closing date is March 18, 1960. The Board of Trade reference is ESB/4588/60.

From Sudan :

1 heavy-duty double-ended wheel lathe suitable for turning the tread profiles, flanges, and inside faces of coupled wheel tyres of locomotives.

The issuing authority and address to which bids should be sent is the Controller of Stores, Sudan Railways Stores Department, Atbara. The tender No. is 2115. The closing date is March 15, 1960. The Board of Trade reference is ESB/4781/60.

34 tank wagons.

The issuing authority and address to which bids should be sent is the Controller of Stores, Sudan Railways Stores Department, Atbara. The tender No. is 2127. The closing date is March 24, 1960. Specifications and relevant drawings can be obtained from the Office of Controller of Stores on payment of £5 3s. Tenders should be sent accompanied by a deposit of £1,000 to be paid either by cheque or by means of a bank guarantee to be sent to the Office of Controller of Stores or to Sudan Government Purchasing Agent, 3-5, Cleveland Row, St. James's, London, S.W.1. Any tender not accompanied by a deposit will not be considered. No further information about this call for tenders is available at the Board of Trade. The Board of Trade reference is ESB/4780/60.

1 sand blast machine.

The issuing authority is the Sudan Railways Stores Department. The tender No. is 1977. The closing date is March 21, 1960. Details and specifications can be obtained from the Office of Controller of Stores, Atbara. No further information is available at the Board of Trade. The Board of Trade reference is ESB/4934/60.

From Korea :

576 *tonnes* of structural steel plate of various sizes.

423 *tonnes* of structural steel angles of various sizes.

456 *tonnes* of structural steel channels of various sizes.

2,240 *tonnes* rail track, open hearth steel, to conform to AREA specification, 39 ft. in length and drilling in accordance with KNR plan 56-493.

The issuing authority is the Office of Supply, Government of the Republic of Korea, Seoul, Korea, to whom bids should be sent. The tender No. is 686-S. The closing date is March 16, 1960. The Board of Trade reference is ESB/4785/60/ICA.

From Pakistan:

14 items of machine tools.

The issuing authority is the East Bengal Railway. The tender No. is P6/C/1/60. The closing date is April 4, 1960. Tender forms are available from the Chief Controller of Stores, Eastern Bengal Railway, Pahartali, Chittagong, on payment of Rs. 25 per set. No further information is available at the Board of Trade. The Board of Trade reference is ESB/4829/60.

Further details relating to the above tenders together with photo-copies of tender documents, unless otherwise stated, can be obtained from the Branch (Lacon House, Theobald's Road, W.C.1).

Notes and News

Luncheon to Mr. Sydney Hearn.—A luncheon to Mr. Sydney Hearn, who is retiring as Assistant General Manager, British Railways, Eastern Region, on March 31, will be held at the Dorchester Hotel, Park Lane, W.1, on Wednesday, March 23. The cost will be 32s. 6d., including the presentation, and application should be addressed to Mr. Shirley H. James, 4, West Halkin Street, Belgrave Square, S.W.1.

Withdrawals of Services from L.M. Region Stations.—The following stations in British Railways, London Midland Region, will be closed from March 7: Bullgill (between Maryport and Carlisle) for all traffic except wagon-loads of coal and so on and for forwarded sugar beet; Calveley (Crewe-Chester) for passengers, parcels, and passenger train merchandise; Farington (Wigan–Preston) for all traffic; Grayrigg (Carnforth–Penrith) for all traffic; Irchester (Bedford–Wellingborough) for passenger and parcels traffic; Low Gill (Carnforth–Penrith) for all traffic;

High-Tension Electrification Warning Notices on Locomotives

Notice on British Railways steam locomotive drawing attention to high-tension overhead wires, one of a series affixed elsewhere on tank, and on tender engines

Milford & Brocton goods depot (Rugeley–Stafford) for all traffic; Mollington (Chester–Birkenhead) for all except certain freight traffic; and Towneley goods depot, near Burnley, for all traffic. Alternative arrangements have been made to deal with parcels, merchandise and other goods traffic withdrawn from these stations. Bus services operate in the areas concerned.

190 Railway Operating Company, Royal Engineers.—A re-union dinner for the members of 190 Railway Operating Company, Royal Engineers, who served during the 1939-45 war, will be held on April 9, at the Victory Ex-Services Club, 63/79, Seymour Street, London, W.2. The cost of tickets is 18s. each, and can be obtained from Mr. J. E. Stancer, Minorvi, Station Road, Burstwick, near Hull.

"Oklahoma."—The Great Western Railway (London) Operatic Society has established a very high reputation, but it excelled itself last week with its performance of "Oklahoma," the well-known musical by Oscar Hammerstein. The whole production went with a swing and delighted an appreciative audience. The large cast was well chosen and obviously had been carefully rehearsed to get the best from an ambitious undertaking. Many stalwarts of the society were included and gave excellent performances, but the overall level was so good the action never flagged.

Western Region Women's First Aid Competition.—British Railways, Western Region Women's First Aid Competition was held at Old Oak Common Hostel, London, on February 23. Doctors C. T. Newnham of London and J. S. Squires of Swindon were the adjudicators, and the subsequent proceedings were presided over by Mr. S. G. Ward, Regional Establishment & Staff Officer. The Awards were presented by Mrs. A. C. B. Pickford, wife of the Assistant General Manager (Traffic). The vote of thanks to the adjudicators and other helpers was proposed by Mr. S. Stevens, District Engineer. The Class I section was won by the Paddington 'A' team, who will now compete in the British Railways, Docks & London Transport (Railways) Competition for Women, which is being arranged by the St. John Ambulance Association at the Central Hall, Westminster on June 9. The Class 2 section was won by the Swindon 'B' team. Mr. Ward was supported by Mrs. Ward, Mr. and Mrs. Pickford, the adjudicators, Mr. S. Stevens, District Engineer and Mr. J. A. Martin, Regional Ambulance Secretary. The accompanying illustration shows from left to right, Mr. Ward, Mr. Martin, Mrs. Ward and Mr. Pickford.

Mrs. Pickford presenting the Class "1" trophy to the Paddington "A" team

F.B.I. Suggestions for Budget.—The main suggestions for the 1960 Budget made by the Federation of British Industries are: first, that almost all the allowances available for income tax should now be applied also to surtax, and, secondly, that income tax should be reduced. The basis of the F.B.I. argument is its belief that the economy has been expanding in a satisfactory way, even though in some sections there is still much spare productive capacity. In these circumstances the Federation believes, no extraordinary fiscal measures of stimulation or restriction are appropriate. The proposals were presented to the Chancellor of the Exchequer, Mr. D. Heathcoat Amory, before the railway unions were granted a 5 per cent pay increase in anticipation of the recommendations of the Guillebaud Committee.

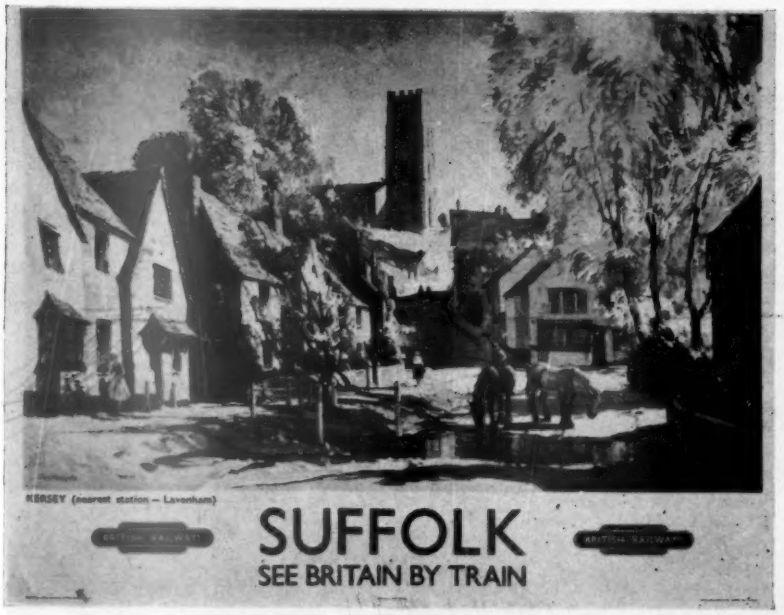
Body Found in Restaurant Car on Siding.—The body of a man, with the feet bound, was found in a restaurant car in a siding at Hull, British Railways, North Eastern Region, on February 29. The car is reported to have been in the siding for about six weeks, and the man had been dead several days.

192 Railway Operating Company, R.E., Reunion Dinner.—A re-union dinner for members of 192 Railway Operating Company, Royal Engineers, is being arranged at the Great Northern Hotel, Leeds, on April 9. The hotel will be available to members from noon onwards, and dinner will be served at 6.30 p.m. Wives and friends are welcome. Tickets are available from Mr. L. Dickinson, 10, Grovehall Drive, Leeds, 11.

Institution of Locomotive Engineers Summer Meeting in Germany.—The 1960 summer meeting of the Institution of Locomotive Engineers will be held in Germany on May 9–13. The provisional programme is as follows: May 9, official opening in Frankfurt/Main in the afternoon, and evening reception by the President of the German Federal Railway, followed by dinner at which members and their ladies will be guests of the Federal Railway; May 10, technical visit in morning to Federal Railway installation, and travel by rail to Munich in the afternoon; May 11, visit to Siemens-Schuckertwerke A.G. plant in morning, and sight-seeing tour to Garmisch in afternoon and evening; May 12, visit to Krauss-Maffei A.G. plant in morning, and travel by rail to Frankfurt in the afternoon; May 13, by rail from Frankfurt to Bingen, thence by Rhine steamer to Coblenz, and train to Cologne *en route* to the Hook of Holland; May 14, arrival at Liverpool Street at 9.13 a.m.

More Visitors to York Railway Museum.—A record number of people visited York Railway Museum last year. The collection was seen by over 152,800 people, an increase of 17,000 compared with 1958. The Museum opened to the public in 1928 by the former London & North Eastern Railway, is now administered by the Curator of Historial Relics, B.T.C. Locomotives, rolling stock, signals, rails and other permanent way relics are housed in a building in Queen Street, York, formerly a locomotive repair

Eastern Region Publicity



Kersey, Suffolk, one of a series of posters produced by the department of the Public Relations & Publicity Officer, Eastern Region, British Railways

shop. Pictures, maps and other small relics, such as telegraph instruments, and the first ticket-dating machines, are displayed in what was once the first-class refreshment room of the first station at York.

Inspection of Locomotives for Sudan.—The consulting engineers responsible for inspection of the diesel-electric locomotives for the Sudan Railways, described in our last week's issue, are Messrs. Livesey & Henderson.

Widening of the Great Northern Line, Eastern Region.—Further plans to speed up passenger and goods services by removing bottlenecks on the main line from Kings Cross to the North have been announced by the Eastern Region of British Railways. Seven sections of the line where there are less than four tracks are to be widened on the 100 miles between Kings Cross and Stoke Tunnel, five miles south of Grantham. This new work follows the completion last May of three new tunnels and an additional pair of lines between New Barnet and Potters Bar.

Far-Air Filters for Sudan Locomotives.—The special air filters incorporated in the design of the English Electric diesel locomotives described in our last week's issue and built by the Vulcan Foundry Limited, are 20 × 25 × 4-in. Far-Air panels manufactured in aluminium by Intermit Limited. Reference to Air-Maze Limited in our list of sub-contractors is an error which we regret. Each of the 15 locomotives will have 22 interchangeable panels ; the total, with 66 spares, amounts to 396. Intermit Limited is the first filter manufacturer to supply weight-saving aluminium air filters for United Kingdom-built locomotives. The same company has supplied, direct to the Sudan Railways, an Intermit filter washing and oiling plant.

Forthcoming Meetings

March 7 (*Mon.*).—Institute of Transport, Sheffield Section, at the Royal Victoria Hotel, Sheffield, at 7.30 p.m. Paper on "Transport and the nation," by Mr. G. F. Fiennes.

March 7 (*Mon.*).—Institute of Transport, Sussex Group, at the Bus Station, Chichester, at 6.15 for 6.30 p.m. Debate with Portsmouth Group "That transport charges be allowed to find their own level."

March 7 (*Mon.*)—Permanent Way Institution, London Section, at the Headquarters of the British Transport Commission, 222, Marylebone Road, N.W.1, at 6.30 p.m. Paper on "Ultra sonic detection of rail flaws," illustrated, by Mr. J. Banks.

March 7 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, W.1, at 6 p.m. Paper on "The future of co-ordination between rail and road," by Mr. A. J. White.

March 8 (*Tue.*).—Institution of Railway Signal Engineers, York Section, at the Signalling School, Toft Green, York, at 5.30 p.m. Paper on "Telephone equipment on the Newcastle signalling scheme," by Mr. D. Greenfield, British Railways, North Eastern Region.

March 8 (*Tue.*)—Institution of Civil Engineers, at Great George Street, S.W.1, at 5.30 p.m. Informal discussion on "Deep excavations," introduced by Mr. V. H. Collingridge.

March 8 (*Tue.*).—Permanent Way Institution, York Section, in the Railway Institute, York, at 6.45 p.m. Paper on "Experiences of an Area Assistant District Engineer," by Mr. J. G. Batley.

March 9 (*Wed.*).—British Railways, Southern Region, London Lecture & Debating Society, at the Chapter House, St. Thomas' Street, S.E.1, at 6 p.m. Paper on "Southern bridges—construction and reconstruction," illustrated, by Mr. E. K. Bridge. Chairman, Mr. A. H. Cantrell, Chief Civil Engineer, Southern Region.

March 10 (*Thu.*).—Institute of Transport, South Western Section, at the Great Western Hotel, Exeter, at 12.45 p.m. Paper on "The work of a travel agency," by Mr. B. W. G. Davis.

March 10 (*Thu.*).—British Railways, London Midland Region, Lecture & Debating Society, at the Clerical Staff Dining Club, Cardington Street, Euston, N.W.1, at 5.45 p.m. Paper on "The proposed Victoria Line," by Mr. C. E. Dunton.

March 10 (*Thu.*).—Institute of Transport, East Midland Section, at Franklin's Gardens Hotel, Northampton, at 1 p.m. Paper on "The effect of railway modernisation in the Midlands," by Mr. George Dow, Divisional Traffic Manager, London Midland Region.

March 10 (*Thu.*).—Railway Correspondence & Travel Society, West Riding Branch, in the Physics Department, Leeds University, at 7.30 p.m. Paper on "The design of British pre-grouping signals," by Mr. G. Butland.

March 11 (*Fri.*).—Railway Correspondence & Travel Society, West Midland Branch at the Exchange & Engineering Centre, Birmingham, at 7.15 p.m. Paper on "The Leek & Manifold Railway," by Dr. J. R. Hollick.

March 11 (*Fri.*).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, London, N.W.1, at 7.15 p.m. "Personal reminiscences of R. W. Urie and his locomotives," by Mr. T. Clyde Britten.

March 14 (*Mon.*).—Institute of Transport at the Jarvis Hall (R.I.B.A.), 66, Portland Place, W.1, at 5.45 p.m. Paper on "The Channel Tunnel," by Mr. M. A. Cameron.

March 14 (*Mon.*).—Railway Correspondence & Travel Society, Northampton Branch, at the Liberal Club, Castilian Street, Northampton, at 7.30 p.m. Paper on "Rail tours and events of the past four years," by Mr. J. B. C. McCann.

March 15 (*Tue.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, at 5.30 p.m. Annual general meeting followed by a paper "The Class 25 condensing locomotives on the South African Railways—design and operating experiences," by Prof. Dr. Ing. R. Roosen.

March 17 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "The Port of Bristol and railways," illustrated, by Mr. F. D. Arney, General Manager, Port of Bristol Authority.

March 17 (*Thu.*).—Institute of Traffic Administration, Glasgow Centre, at the Kenilworth Hotel, Queen Street, Glasgow, at 7.45 p.m. Annual general meeting and talk by Mr. J. H. Young, British Railways, Dundee.

March 17 (*Thu.*).—Diesel Engineers & Users Association, in the Institute of Marine Engineers, The Memorial Building, 76, Mark Lane, E.C.3, at 2.30 p.m. Paper on "Factors governing turbocharger design," by Mr. C. L. G. Worn.

Railway Stock Market

Despite uncertainty over the possibility of new measures to check inflation, there has been no heavy selling in stock markets. This is because it is hoped further measures will not be necessary, and because it is argued that in any event the present situation in regard to inflation is only temporary, and the industrial outlook generally remains encouraging. Buyers in stock markets are adopting a waiting attitude until the Budget, when the outlook should be much easier to assess. It continues to be widely realised that there will be no scope for any major tax reductions this time, though increases are not expected.

There was only a very small business in foreign rails. Costa Rica debentures held their recent good gains, the first debentures being 90 and the second 93½, and the ordinary stock kept its improvement to 27. Guayaquil & Quito assented bonds were quoted at 78, Mexican Central "A" bearer debentures held their rise to 59½. In other directions, International of Central America preferred eased from $113½ to $111½, though the common stock held at $26½.

Antofagasta ordinary stock lost a point at 15½, as did the preference stock at 31; the 5 per cent (Bolivia) debentures remained at 100. Chilean Northern first debentures were again 59, Sao Paulo Railway, 3s. units 1s. 6d., Brazil Railway bonds 8, and United of Havana second income stock was again quoted at 6.

Canadian Pacifics at $46½ moved fractionally higher, as did the preference stock at 56½, but the 4 per cent debentures eased to 64¾, most sterling fixed-interest stocks having taken their cue from British Funds. White Pass shares were well maintained at $13¾.

Among locomotive, engineering, and kindred shares awaiting fresh news about the merger talks with Charles Roberts, Birmingham Wagon eased from 43s. to 42s. 3d. Charles Roberts 5s. shares lost 1s. at 15s. 6d. Elsewhere, Gloucester Wagon 10s. shares held firm at 17s. and Wagon Repairs 5s. shares were little changed at 12s. 7½d., but North British Locomotive eased to 11s. G. D. Peters showed a fair number of dealings around 21s. Beyer Peacock 5s. shares eased slightly to 8s. 6d.

Pressed Steel 5s. shares have been steadier at 39s. 7½d. Dowty Group 10s. shares eased to 55s. 4½d., but Westinghouse Brake at 51s. 9d. were the same as a week ago. In other directions, Ransomes & Marles 5s. shares strengthened to 26s. 6d. on higher dividend hopes. Pollard Bearing 4s. shares, also because of higher dividend expectations, rose from 41s. 9d. a week ago to 42s. 3d. Ruston & Hornsby receded from 32s. a week ago to 30s. 6d., and Broom & Wade 5s. shares came back from 19s. 3d. to 18s. 10½d., while T. W. Ward were 155s. compared with 156s. 3d. Vickers held steady at 35s. at which there is a yield of nearly 5½ per cent on last year's 10 per cent dividend. Babcock & Wilcox came back from 43s. 6d. to 42s. 6d., and Clarke Chapman from 60s. 3d. to 59s.

Other more active shares have also reflected the reactionary trend in stock markets, Associated Electrical, for instance, were 58s. 3d. compared with 60s. 6d. a week ago, General Electric 39s. 3d. compared with 40s. 9d. and English Electric 43s.xd. compared with 47s. 9d.

OFFICIAL NOTICES

ENGINEER, 44, A.M.I.Loco.E. Lately Diesel-Electrical Superintendent, Colonial Railway, recently returned 3 years South Africa, offers services. Testing, Commissioning, Representative or suggestions, Electric Diesel-Electric Locomotives or Allied Equipment, Home or Overseas. Box No. 938, *The Railway Gazette*. 33 Tothill St., Westminster, S.W.1.